

**ROAD EQUIPMENT (700)****710.0 EQUIPMENT MANAGEMENT**

The management of the equipment fleet is divided between the six districts and the Headquarters Maintenance Section. Each district and the Maintenance Section are responsible for unique duties.

**710.1 Headquarters**

The Maintenance Section provides, and administers all vehicle and equipment specifications and purchase requests required by the Department. The Section's goal is to provide economical equipment that is multi-functional, safe, and accomplishes the required tasks. To that end, Maintenance Section personnel are assigned administrative, financial, purchasing, and technical services. The Maintenance Section is required to establish policy and procedures for fleet administration, budgets, purchasing and allocation of vehicles and equipment to district operations.

The Maintenance Section equipment staff consists of the Equipment Superintendent, an Equipment Analyst, and a Technical Records Specialist. The Equipment Superintendent is responsible for the management of the equipment fleet including budget submittal and monitoring, policy development, complement status and inventory, maintenance and disposal. The Equipment Analyst's duties include specification development, warranty claims, various maintenance item contracts, overseeing the development and use of the Equipment Management System (EMS), and operator and mechanic training. The Technical Records Specialist is responsible for entering data into the computerized EMS, processing of equipment purchases and payments, and licensing of vehicles.

**710.2 Districts**

The District Engineer or designee is responsible for insuring that the equipment in the district is operated and maintained in accordance with established policies and procedures as well as making sure that the equipment is utilized to the greatest extent possible. Each District Engineer administers the operation of the District Shop that performs major and minor repair of vehicles and equipment assigned to that district.

**714.0 EQUIPMENT MANAGEMENT OBJECTIVES**

The equipment management objectives are to provide Idaho Transportation Department employees with the most cost efficient and well maintained vehicles and equipment available as well as the training necessary to operate this equipment so they can perform their required job assignments in the most efficient manner possible.

**715.0 EQUIPMENT ASSIGNMENT**

Equipment is assigned on the basis of need and usage. Accurate records provide information concerning the amount of usage. Employees with assigned equipment on either a permanent or temporary basis are responsible for keeping accurate records and performing the necessary preventive maintenance.

**715.1 Equipment Complement**

Road equipment is allocated to each district on the basis of need and availability. A complement system is used to establish the quantity of units assigned to each individual district.

The district complement is reviewed biannually by the Equipment Superintendent and district personnel to determine if changes are required. The previous year's utilization figures and mileage reports as well as employee complement changes are used as consideration for adjustments made in the complement levels of each type of equipment. One for one category changes in complement will be allowed as needed. Requests for changes in complement resulting in an increase in the total number of units must be made prior to the complement review meeting and shall be accompanied by supporting documentation justifying the need for additional equipment. All complement level increases shall be approved by the Chief Engineer and prior to the purchase of additional units.

The Headquarters complement is reviewed annually by the Equipment Superintendent and Section personnel to determine if changes are required. Adjustments in complement levels require the same procedure as district complement adjustments.

**715.1.1 On-Hand Inventory Levels**

The District Engineer is responsible for maintaining the on-hand inventory level of equipment is equal to the established complement level for each category of equipment. As new equipment is received, the District is responsible for insuring that surplus equipment is disposed of in a timely manner. Surplus equipment can be retained for use during summer months of operation with planned disposal taking place during the fall of each year. All surplus equipment shall be disposed of by December 31 of each year resulting in the on-hand inventory level being equal to established complement levels.


**715.2 Equipment Transfer Procedure**

Equipment is transferred from one district to another district through the use of the ITD-991 Equipment Transfer Request form. This form must be completed by the receiving district and signed by the Maintenance/Region Engineer. The form is then forwarded to the Equipment Superintendent for approval.

Refer to Figure 700-1.

ITD - 991 1-98

**ROAD EQUIPMENT TRANSFER REQUEST**  
TRANSFER EFFECTIVE THE 1<sup>ST</sup> DAY OF THE FOLLOWING MONTH



Equipment Number 5 Date \_\_\_\_\_

Description \_\_\_\_\_  
\_\_\_\_\_

FROM: District/Category \_\_\_\_\_ TO: District/Category \_\_\_\_\_  
(Circle One) (Circle One)

Org. \_\_\_\_\_ Co. \_\_\_\_\_ Shed \_\_\_\_\_

Signed \_\_\_\_\_ Approved \_\_\_\_\_  
(Receiving District Maintenance/Region Engineer) (Equipment Superintendent)

Distribution: To be completed by Headquarters Maintenance

Original - Equipment Superintendent	Pink Copy - Financial Services
Yellow Copy - Receiving District	Gold Copy - Sending District
Green Copy - GASCARD Administrator	Photocopies of Original - Chem Lab & P&MM

**715.3 Criteria for Vehicle Assignment**

Individual vehicles can be assigned to personnel or work crews based on need and usage. All assigned vehicles are to be utilized at 100 percent of the Department assigned target utilization level. It will be the responsibility of the individual or work crew lead worker to make sure that all utilization is recorded on the proper forms. Assigned vehicles not receiving 100 percent of target utilization can be reassigned to another location at the discretion of the Equipment Superintendent or District Maintenance/Region Engineer responsible for that area.

**715.4 Motor Pool Operations**

Each of the six districts and headquarters maintains a motor pool of unassigned vehicles and equipment. These motor pools are to be utilized by Department personnel to conduct Department business.

The districts and headquarters are to assign a single individual to maintain the paperwork for checking out the individual vehicles. Prior to all business trips in excess of 100 miles, the employee wishing to check-out a pool vehicle must complete all sections of the ITD-9 for that vehicle with the exception of the ending mileage and total mileage columns before they are given the keys to the vehicle. Upon returning the vehicle, the ending mileage and total mileage columns are to be completed. For short business trips, the assigned individual maintaining the paperwork shall create a single entry recording all miscellaneous mileage on the vehicle for each month. ITD-9 forms are to be data entered on a monthly basis.

**716.0 EQUIPMENT IDENTIFICATION, LICENSING AND REGISTRATION**

Any equipment used for the management and/or maintenance of state highways, that uses fossil fuel and has an initial cost exceeding \$1000 is considered road equipment and will be identified with an equipment number. Class and category numbers will also be assigned for inventory and rental designation purposes. Refer to Figure 700-5 in Section 744.0.

Passenger vehicles shall be painted a single tone of any selected manufacturer's standard random color. The standard six-inch department door decal of the appropriate contrasting color (gold or black) shall be displayed on the center portion of each front door.

Light duty utility vehicles include all categories of vehicles from Category 200 to 230 except those vehicles utilized by Port of Entry operations. Light duty vehicles shall be painted factory standard fleet white on the cab and factory installed beds. Aftermarket bodies and accessories mounted above the frame and behind the cab shall be "DuPont" No. 7893 yellow. A 4" to 6" horizontal reflective yellow stripe shall be applied to both sides and rear of all light duty vehicles on the white painted portion. Reflective yellow stripes are not required on yellow painted bodies. A department blue/orange reflective decal shall be installed on the center portion of each front door.

POE vehicles shall be painted a manufacturer's standard tan/beige color. The standard black six-inch department door decal shall be displayed on the center portion of each front door.

Heavy-duty truck vehicles include all categories of vehicles from Category 320 to 347 and Category 372 to 393. Truck cab, hood, and fenders shall be factory standard fleet white color. Painted portions of truck chassis and underbody components shall be black in the manufacturer's paint and finish. Other components may be finished according to the factory finish.

Other components may be finished according to the factory finish. Bodies and accessories mounted above the frame and behind the cab shall be "DuPont" No. 7893 yellow. A 6" horizontal reflective yellow stripe shall be applied to both sides of the cab. Yellow dump bodies and flatbeds shall have a reflective yellow stripe of the appropriate width applied to the lower longitudinal rail of the dump body. The tailgate perimeter shall be outlined with the appropriate width of reflective striping. A department blue/orange reflective decal shall be installed on each front door.

Street Sweepers, Categories 907 & 910, shall be factory standard fleet white color. A 6" horizontal reflective yellow stripe shall be applied to both sides and rear of the cab and sweeper body. A Department blue/orange reflective decal shall be installed on each front door.

Construction equipment shall be painted the manufacturer's standard safety yellow. If the manufacturer's standard color is not yellow, then the unit will be painted "DuPont" No. 7893 yellow. A department blue/orange reflective decal shall be installed on each side of unit.

All other ITD road equipment including rotary snow plows, snow plow blades, and trailers that are utilized on State of Idaho highways, shall be painted "DuPont" No. 7893 yellow. A department blue/orange reflective decal shall be installed on each side of unit.

Miscellaneous small equipment, such as lawn mowers, generators, water pumps, pavement breakers, and larger equipment that is utilized solely on department grounds such as forklifts, and lawn tractors are exempt from both paint and decal requirements.

### **Identification**

Licensed equipment, except trailers, shall utilize the State of Idaho license number as the equipment identification number. If additional labels are required, they shall be positioned next to the front doors utilizing black decals. For all other equipment and trailers, the equipment number shall be affixed to the unit utilizing decals or painted stencil number, whichever is deemed appropriate.

Titles are held on file in the Maintenance Section office. A packet containing the vehicle registration, any overlegal permits, accident form ITD-556, accident claim slip and accident instruction slip is issued and will be kept in each vehicle displaying license plates.

## **717.0 EQUIPMENT MANAGEMENT SYSTEM**

The automated equipment management system used by the Department aids in the management of fleet operations. The system provides information on all phases of the equipment life cycle, e.g., labor charges, parts, supplies, rental income and fuel usage. Data is gathered from the supply system, accounting system, automated fuel systems and equipment maintenance areas.

Output reports aid in determining replacement schedules and selecting equipment types. Other reports indicate utilization and downtime, which aid in complement determination. Various reports are used to track budget expenditures for operating and owning equipment. Reports on high and low costs for equipment use will aid in determination of disposal lists.

The system is intended to provide shop management information and aid in developing a needs-oriented budget for all phases of equipment management within the Department.

## **718.0 REVOLVING FUND (PLANNED)**

Proper management of an equipment fleet is accomplished when all personnel from users to administrators have the same common goal. This goal is achieved through training and having the proper management tools. An Equipment Revolving fund is one such tool. A Revolving Fund coupled with a dual rental rate system encourages both users and administrators to budget equipment and time as accurately as possible so that a work tasks can be performed as efficiently as possible.

At the request of the Chief Engineer, the Maintenance Section along with other Department personnel are working toward the implementation of an Equipment Revolving Fund in FY-2007.

## **720.0 BUDGET PROCESS**

### **720.1 Budget Requests**

The Maintenance Section submits to Executive Management a list of the vehicles and equipment that will be at or beyond the determined economic life for such equipment at the time the budget is finally approved. This list is accompanied by the estimated cost of replacement for the units to develop a proposed budget for road equipment replacement. This request is then submitted to the Governor's Office as part of the total Department budget request.

**720.2 Approval Process**

The budget request for road equipment must first be approved by the Governor before it is submitted to the Legislature for approval. Either the Governor or the Legislature may alter the request as they deem necessary. The budget as approved by the Legislature is then returned to the Department's Executive Management for implementation. The Department's Executive Management may at this time alter the approved budget if necessary to fund other needs of the department.

**720.3 Budget Allocation District 61**

The final approved equipment budget is allocated in a two step process. The first step is to determine the amount of money needed to sustain the headquarters fleet and Buy-Back programs for the districts. In addition to determining these requirements, any large purchases required by the districts are determined. Purchases such as truck fleets, crawler tractors, rotary snow plows and striping trucks are allocated at this time. After making all these determinations, the remaining money is allocated to funding replacement priorities recommended by the districts.

**720.4 Budget Allocation Districts 1 to 6**

The districts are allocated money to replace vehicles and equipment that is not included in the above section. Equipment such as sedans, pickups, individual pickups, loaders, motor graders, and other miscellaneous equipment is the district's responsibility to replace as money is allocated to them.

The money is allocated to the districts based on the amount of preventive maintenance performed by the district staff, the amount of utilization from the previous year, and the average age of the district fleet.

**720.4.1 Preventive Maintenance**

Ten (10) percent of the total district allocation is based on the amount of preventive maintenance performed on the vehicles and equipment in the district fleet. Of the ten percent, half is allocated on the basis of the number of work units completed and the remaining half is allocated on the number of man-hours required to complete the preventive maintenance. All types of preventive maintenance activities are utilized in the analysis for all types of vehicles and equipment.

**720.4.2 Individual Fleet Age**

Forty-five (45) percent of the district allocation is based on the current age of the district fleet. Equipment that is replaced from the District 61 allocation such as truck fleets, crawler tractors, striping units and rotary snowplows are not utilized in this analysis since the district allocation is not utilized to replace this equipment.

The allocation involves using weighted averages based on individual equipment replacement cost.

**720.4.3 Previous Year Utilization**

The remaining forty-five (45) percent of the district allocation is based on the previous year's utilization of the equipment in the district. As with the age allocation, equipment that is purchased from the District 61 allotment is not utilized in the analysis and the allocation is weighted on the basis of replacement value.

**730.0 PURCHASING CONCEPTS****730.1 Fleet Purchase Concept**

In the 1970's the Department began purchasing dump/sander trucks on a district fleet basis. This concept proved to be beneficial for both the individual districts and headquarters equipment management.

The benefits of purchasing trucks in fleets for the individual districts are as follows:

1. Trucks located in the same district are identical.
2. Fewer replacement parts have to be inventoried.
3. An operator can change from one truck to another and will be familiar with the controls and operation.
4. Operators and Mechanics can be trained at a lesser cost.
5. All service and preventive maintenance schedules are alike which eliminates confusion.
6. Headquarters personnel are made responsible for determining the replacement schedule of fleet equipment in lieu of the districts determining when a unit needs to be replaced.

7. By headquarters determining the replacement schedule, the equipment will be replaced on schedule and at the economic life instead of being retained past the economic life, which is the current situation.
8. The equipment fleet statewide will become more modernized through scheduled replacement.

### **730.2 Weighted Evaluation Bid Award Criteria**

The weighted evaluation bid award criteria (Points System) is utilized on vehicle and equipment purchases where a large disparity exists in the quality of the various brands offered. This type of bid evaluation takes into consideration factors that normally are not considered in regular low bid evaluations. Items that offer a safer unit, a maintenance cost savings, operator comfort, and reduced operation costs are awarded additional points in the evaluation process.

This type of bid award evaluation encourages all vendors to participate in the bid process. Since implementation of this type of bid evaluation, bid responses for trucks have increased. This increase in interest by other vendors provides the Department the opportunity to purchase better equipment at a more competitive price.

The Points System begins by awarding the low bid response a maximum number of predetermined points. Each point item is assigned a point value based on the expected payback of the item. If the bid response meets the points item criteria as established in the specifications, then the point value for that item is added to the point value for price. This is completed for all point items. The bid response ending with the highest total point value is then determined to be the successful bidder.

### **730.3 Buy-Back Criteria**

The buy-back method of determining the low responsive bid offers the vendor an opportunity to repurchase road equipment that was sold to the Idaho Transportation Department. At the time of the bid, the vendor submits a bid proposal stating the selling price of the equipment and a guaranteed price that the vendor is willing to pay to repurchase the equipment at a specified date.

The buy-back method of purchasing equipment is utilized on equipment that has a high volume of sales in the contractor/construction market. The buy-back method has been successfully used to purchase motorgraders, loaders, backhoes, and tractor trucks.

Purchasing equipment via the buy-back method offers ITD many advantages. Reduced ownership and maintenance costs are realized as well as several intangible benefits. Some of these benefits are less downtime for repairs and locating parts, fewer mechanics are required due to reduced workload, operator fatigue is reduced, employee moral is higher, and newer equipment is more efficient.

This form of equipment purchasing is effective due to the fact that ITD and the vendors are able to take advantage of municipality concessions on pricing and the absence of federal taxes that are not charged on equipment being purchased by municipalities. The vendor is able to repurchase the equipment after a short duration of time from ITD at a cost that is below the current market value of new units. The vendors are able to quickly sell equipment with low hours, extended warranties, and no excise taxes to the contractor/construction market at a fair price with a fair profit.

### **730.3.1 Buy-Back Bid Evaluation Process**

The goal of the buy-back bid process is to reduce the ownership costs associated with the equipment fleet. Therefore, a financial analysis is performed by the Equipment Superintendent on each bid response that contains a buy-back proposal to determine the lowest ownership cost of all bid responses.

When purchasing equipment via the buy-back method, full disclosure of the bid evaluation process is detailed within the specifications. The method for calculating the ownership cost is detailed along with the calculations for loss of interest on the purchase price. As part of the specifications, all buy-back bid responses are required to obtain a surety bond in the amount of 10% of the buy-back amount. This protects ITD in the event the vendor is not able to repurchase the units at the specified date.

For direct purchase bid responses, the annual cost is calculated utilizing straight-line depreciation over the useful life of the equipment, and a 20% salvage value. A salvage value of 20% is utilized in the equipment analysis to provide a more accurate account of market value at the end of its useful life.

Buy-back bid responses are evaluated by taking the purchase price of the unit and subtracting the buy-back offer. The amount is then divided by the respective number of years that ITD will own the unit to arrive at the annual cost of ownership. This resultant value is then compared to the annual depreciation cost calculated for all direct purchase proposals. The bid proposal that offers ITD the lowest annual cost is awarded the bid.

Refer to Figure 700-2.

**730.3.2 Buy-Back Boot Analysis**

As each unit is sold to the vendor, a new unit must be purchased to maintain the complement level within the district fleet. The money generated from the sale of these units is utilized to purchase the replacement units. However, the value received for sold unit is usually less than the purchase price for the new unit. The additional cash needed to complete the purchase is referred to as the Buy-back Boot.

Each buy-back purchase is analyzed to determine how the purchase compares with the historical trend of the program. The analysis computes the expected cash flow of equipment as it relates to a direct purchase and also under the buy-back option.

The analysis calculates the future value of the required replacement (boot) cost as if the funds were deposited in a savings account to earn interest until the equipment needs to be replaced under the direct purchase bid. Actual purchase prices, buy-back values, replacement costs and the useful life of the equipment are utilized to conduct the analysis. The analysis is performed using the replacement (boot) cost for the specific bid along with a five-year average of the boot amounts.

The interest rate utilized to compute the future value of the buy-back boot is based on the interest rate received on Investment of Idle Monies, rounded to the nearest 1/2 percent. This rate is obtained from the state of Idaho Treasurer's Office. The duration of the buy-back proposal is considered in determining the interest rate used in the analysis.

The direct purchase option analysis takes into account the future value of the initial purchase cost as well as the cash received when the unit is sold at the end of its useful life. For analysis purposes, a residual value of 20% will be used. Additionally, the future value of the annual repair costs after the extended warranty is exhausted is also calculated and included in the total cost analysis for the direct purchase option. These repair costs will be determined by utilizing historical data obtained from ITD's Equipment Management System. Only data with an age within the useful life of the unit will be utilized to calculate repair costs.

Equipment will be acquired under the option with the least cost. The equipment will be replaced and purchased with the buy-back option as long as the future value (cost) analysis for the buy-back boot is less than the direct purchase option. If the computed value of the buy-back option is greater than the direct purchase option, then the decision to not replace the equipment currently on hand will be made.

Refer to Figure 700-3.

Figure 700-2  
**BACKHOE/LOADER**

VENDOR	Schloffman Tractor Ford 555 E	Coeur d'Alene Tractor Ford 575E	Pioneer Equipment Case 580 Super L	CESCO John Deere 310E	Idaho Tractor Case 580 Super L
Direct Purchase Price	\$ 51,943.00	\$ 53,980.00	\$ 50,800.00	\$ 51,499.00	\$ 53,977.00
Annual Depreciation	\$ 3,895.73	\$ 4,048.50	\$ 3,810.00	\$ 3,862.43	\$ 4,048.28
Monthly Depreciation	\$ 324.64	\$ 337.38	\$ 317.50	\$ 321.87	\$ 337.36
Monthly Cost for Ownership	\$ 324.64	\$ 337.38	\$ 317.50	\$ 321.87	\$ 337.36
Buy-Back Purchase Price	\$ 51,943.00	\$ 53,980.00	\$ 50,800.00	\$ 51,499.00	\$ -
Buy-Back Amount	4/1/99 7 \$ 47,215.00	7 \$ 49,500.00	7 \$ 50,800.00	7 \$ 51,500.00	7 \$ -
Monthly Cost for (Assumed Delivery of April 1, 1998)	4/1/99 7 \$ 394.00	7 \$ 373.33	7 \$ -	7 \$ (0.08)	7 \$ -
1/2% Monthly Loss of Interest Cost Compared to Lowest Bid	\$ 5.72	\$ 15.90	\$ -	\$ 3.50	\$ -
Total Average Monthly Cost for Buy-Back Units	\$ 399.72	\$ 389.23	\$ -	\$ 3.41	\$ -
Lowest Monthly Cost Bid	\$ 324.64	\$ 337.38	\$ -	\$ 3.41	\$ 337.36

**740.0 EQUIPMENT REPLACEMENT & PROCUREMENT****740.1 Equipment Request Lists**

Approximately one month prior to the start of the fiscal year, the individual districts are furnished with a Road Equipment Request (ITD-738) form and the amount of their allocation. This form is utilized by the districts to inform the Maintenance Section of how they wish to spend their allocated money for equipment replacement. The Complement, On-hand, Useful Life, and Unit Cost columns of the form are completed by the Maintenance Section for each district. The “No. Purchase This Year, Total Cost This Year, and Comments” columns are to be completed by the district and the form returned to the Maintenance Section prior to the start of the fiscal year. The “Comments” column is to contain the equipment number of the unit(s) to be replaced.

In addition to completing the ITD-738, the district is required to complete a Form ITD-230A, Surplus Property Disposal Request, for each unit identified in the “Comments” column of the ITD-738. (See Section 780.0).

Refer to Figure 700-4.

**740.1.1 Replacement Criteria**

Units identified for replacement on Form ITD-738 shall meet the replacement guidelines for age stated in Figure 700-5. Units not meeting the replacement criteria established are eligible for replacement if supporting documentation describing the unit’s condition and reason for early replacement is provided and approved by the Equipment Superintendent.

**740.1.2 Documentation**

All documentation for equipment sold prior to replacement guidelines will be retained by the Equipment Superintendent and the requesting district. Documentation shall consist of but not limited to the justification for early disposal and equipment repair records.

**740.2 Purchasing Schedule**

A purchasing schedule is developed from the district equipment requests. This schedule is distributed to the districts to inform them when their equipment can be expected to arrive in the district.

The purchasing of equipment should be scheduled so the various types of equipment are received prior to the seasonal use of the equipment. Trucks should be scheduled so they are received in the latter part of the fiscal year and loaders and backhoes are to be purchased so delivery is made prior to November.

Figure 700-3  
**BACKHOES**  
**PURCHASE/BUY-BACK ANALYSIS**

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12
Item 1, Direct Purchase 7-1998 Cost \$50,780						\$737	\$661	\$1,176	\$749	\$884	\$755	
Repair Costs												Sell @ Salvage Value \$10,156
												\$672 \$5,634
Item 2, Buy-Back 7-1998 Cost \$50,780												
Sale of Asset	\$50,038	\$50,913	\$51,788	\$52,663	\$53,538	\$54,413	\$55,288	\$56,163	\$57,038	\$57,913	\$58,788	
New Unit Acquisition Cost	\$51,655	\$52,530	\$53,405	\$54,280	\$55,155	\$56,030	\$56,905	\$57,780	\$58,655	\$59,530	\$60,405	
Net Cash Outlay	\$1,617	\$1,617	\$1,617	\$1,617	\$1,617	\$1,617	\$1,617	\$1,617	\$1,617	\$1,617	\$1,617	
												P & I
												Pin
												Int.
												\$ 2,914 \$ 1,617 \$ 1,297
												\$ 2,762 \$ 1,617 \$ 1,145
												\$ 2,618 \$ 1,617 \$ 1,001
												\$ 2,482 \$ 1,617 \$ 865
												\$ 2,353 \$ 1,617 \$ 736
												\$ 2,230 \$ 1,617 \$ 613
												\$ 2,113 \$ 1,617 \$ 496
												\$ 2,003 \$ 1,617 \$ 386
												\$ 1,898 \$ 1,617 \$ 281
												\$ 1,800 \$ 1,617 \$ 183
												\$ 1,706 \$ 1,617 \$ 89
												\$ 24,879 \$17,787 \$ 7,092

Item 1, Direct Purchase  
7-1998 Cost \$50,780

Item 2, Buy-Back Purchase With Interest

Add

	Purch Cost	Invest Cost	Interest Cost	Sale of Asset	Net Cost to ITD	Repair Costs	Total Cost
Item 1, Direct Purchase	\$50,780			\$10,156	\$40,624	\$5,634	\$46,258
Item 2, Buy-Back Purchase With Interest	\$50,780	\$17,787	\$7,092	\$59,663	\$15,996		\$15,996

**Conclusion:** Based on the above computation, the Buy-Back Option is more cost effective in terms of net cash outlay. Over a 12 year period the Direct Purchase Option will cost ITD \$45,702 versus \$15,996 for the Buy-Back Option. If additional expenses for repair costs (parts & labor) are added, the cost savings of the Buy-Back Option is even greater.

**ATTACHMENT B**

Figure 700-4

Sheet 1 of 3

ROAD EQUIPMENT REQUEST F.Y. 20XX					
TYPE OF EQUIPMENT CATEGORY NUMBER	COMPLEMENT	ON-HAND	NO. PURCH. THIS YEAR	UNIT COST	TOTAL COST THIS YEAR
SEDANS 100					
PICKUPS 1/2 T 200				\$15,500.00	
PICKUPS 1/2 T, AUTO TRANS 200				\$15,000.00	
PICKUPS 3/4 T 204				\$18,000.00	
TRUCKS 1 T 214				\$35,500.00	
VANS 216				\$20,800.00	
SUBURBANS 218				\$34,000.00	
TRUCKS DUMP 1 T 220				\$45,000.00	
PICKUPS 4X4 221				\$22,500.00	
STENCIL TRUCK 223				\$75,000.00	
FLATBED TRUCK 324				\$50,000.00	
WATER TRUCK 327				\$80,000.00	
CRASH TRUCK 326				\$65,800.00	
UTILITY TRUCK 336				\$50,000.00	
WEED SPRAY TRUCK 337				\$105,000.00	
SMALL AERIAL TOWER 338				\$60,000.00	
LARGE AERIAL TOWER 338				\$115,000.00	
DIGGER DERRICK/AERIAL TOWER				\$170,000.00	
SCALE/POST DRIVER TRUCK 346, 347				\$75,000.00	
TRACTOR TRUCK 376				\$72,000.00	
WATER TRUCK 393				\$120,000.00	
MULTI PURPOSE TRUCK 392				\$87,000.00	
BACKHOE 401				\$53,500.00	
LOADER TRACTOR TYPE 402				\$42,000.00	
LOADER, SKID STEER 404				\$42,000.00	
LOADER 3 CY 406				\$81,000.00	
LOADER 4 CY 407				\$142,000.00	
MOTORGRADER 510				\$190,000.00	
PULL WINDROWER 610				\$5,500.00	
PLOW UNDERBODY 705				\$8,500.00	
PLOW WING 706				\$9,000.00	
PLOW V-TYPE 710				\$15,000.00	
PLOW ONE-WAY 714				\$5,000.00	
PLOW TWO-WAY 715				\$6,500.00	
COMPRESSOR 0 - 5 CFM 799				\$1,800.00	
COMPRESSOR 161 + CFM 802				\$15,000.00	
JACK HAMMER 804				\$1,675.00	
PAVEMENT BREAKER 805				\$900.00	
SANDBLASTER 806				\$3,000.00	

Figure 700-4 (Contd)

Sheet 2 of 3

ROAD EQUIPMENT REQUEST F.Y. 20XX					
TYPE OF EQUIPMENT CATEGORY NUMBER	COMPLEMENT	ON-HAND	NO. PURCH. THIS YEAR	UNIT COST	TOTAL COST THIS YEAR
					COMMENTS
HOT PATCHER, TRUCK MOUNT 812				\$58,600.00	
HOT PATCHER, TRAILER MOUNT 812				\$35,000.00	
TAR KETTLE 813				\$27,500.00	
CRACK FILLER 814				\$35,000.00	
HOT PATCHER, DUMP PATCHER				\$40,000.00	
BOAT 826				\$6,500.00	
BOAT MOTOR 827				\$3,500.00	
BOAT TRAILER 828				\$1,000.00	
CONCRETE MIXER 831				\$3,500.00	
MORTAR MIXER 832				\$3,500.00	
CONCRETE SAW 833				\$2,750.00	
CRACK ROUTER 836				\$8,000.00	
MISC. (COMPACTOR, WACKER) 837				\$2,000.00	
EARTH AUGER/DRILL 841, 846				\$6,000.00	
DIAMOND DRILL 844				\$5,000.00	
FORKLIFT, SMALL 848				\$27,500.00	
FORKLIFT, MEDIUM 849				\$45,000.00	
FORKLIFT, LARGE 850				\$85,000.00	
YARD CRANE 851				\$7,500.00	
YARD TUG 852				\$4,500.00	
BELT LOADER 861				\$60,000.00	
LAWN TRACTORS 864				\$16,500.00	
LAWN MOWERS 865				\$1,000.00	
SICKLE MOWER 866				\$8,500.00	
BRUSH CHIPPER 868				\$26,500.00	
SLOPE MOWER 869				\$25,000.00	
FLAIL MOWER 870				\$22,000.00	
WATER PUMP UP TO 3-1/2" 872				\$1,500.00	
WATER PUMP 4" AND UP 873				\$5,000.00	
SMALL VIBRATING ROLLER 880				\$32,500.00	
LARGE VIBRATING ROLLER 880				\$75,000.00	
EXCAVATORS 902				\$145,000.00	
MECHANICAL STREET SWEEPER 907				\$130,000.00	
TOW TYPE SWEEPER 908				\$16,500.00	
SELF-PROP BROOM 909				\$31,500.00	
VACUUM STREET SWEEPER 910				\$140,000.00	
DEICER TANK, 1000 GALLON 911				\$11,500.00	

Figure 700-4 (Contd)

[illegible]

### **740.3 Specification Development**

The Maintenance Section is responsible for developing bid specifications for procurement of vehicles and equipment. After developing a purchasing schedule, specifications are developed with assistance from the district(s) that are to receive the equipment. All equipment requests for like equipment are pooled and ordered simultaneously. Therefore, specifications for equipment are standardized between all districts.

#### **740.3.1 Standard Vehicle Equipment**

All passenger type vehicles and trucks will be equipped with air conditioning, cruise control, tilt wheel, and split bench front seats to reduce driver fatigue. Other vehicle options may be specified if it has been determined by the Maintenance Section that it would be in the best interest of the Department in terms of cost and benefits to the operator.

Construction equipment such as motor graders, articulated loaders, backhoes, crawler tractors, farm type tractors, self-propelled brooms, skid-steer loaders and forklifts will be equipped with operator cabs that include heater and air conditioning.

Automatic transmissions will be purchased in 20% of the ½ ton pickups for any given year. The additional cost of the automatic transmission will be charged to the individual district requesting the automatic. It will be up to the district to request the automatic transmission.

Consideration will be given to equipping single axle dump/sander snow plow trucks with automatic transmissions. Only trucks utilized on interstate highways with high traffic volumes in densely populated areas will be considered (Coeur d'Alene, Boise, Caldwell, Pocatello, and Idaho Falls). The requesting district's equipment budget allotment will be charged for the additional cost of the transmission.

Automatic transmissions in other types of equipment will be given consideration if any of the following conditions exist:

1. If the unit comes equipped with an automatic transmission at no extra cost.
2. If vehicle design is not suitable for a standard transmission.
3. If working environment requires the slow even control of movement which an automatic transmission can provide.

**741.0 AIR QUALITY**

The Department will purchase vehicles and road equipment that can provide reduced vehicle emissions. The reduction in emissions will be accomplished by purchasing alternative fueled vehicles that can operate on alternative fuel sources that are readily available within the infrastructure of Idaho. Vehicles equipped with bi-fuel engines capable of running on both 100% gasoline and E-85 (85% ethanol and 15% gasoline) will be purchased when available. These will include sedans, and ½ ton pickups and others as they are developed and made available.

The use of hybrid vehicles will also be increased where applicable and the Department will purchase diesel powered units that can operate on B20 bio-diesel. The purchase and use of these types of vehicles will also assist the Department in meeting the requirement of the Energy Policy Act.

As vehicle emissions are the not only source of degrading air quality, the Department will also specify and purchase PM-10 certified road sweeping equipment. This equipment will be purchased on an as needed replacement basis and existing equipment will not be retrofitted at this time.

**744.0 MANAGEMENT SYSTEM IDENTIFICATION**

Vehicles and equipment are identified in the Equipment Management System (EMS) by Class, Category, and Equipment Number. The Maintenance Section is responsible for assigning this information at the time bid specifications are developed for these units. This information is entered into the EMS by the Maintenance Section along with a description of the equipment, and the acquisition cost of the equipment as it is received. Refer to Figure 700-5 for a listing of the various equipment Categories and Classes of equipment.

## EQUIPMENT CATEGORIES, LIFE, RENTAL RATE

Category	Class	Description	Meter Type	Yearly Days	Target Utilization Miles/Hours	Replacement Life Years	Mileage
100	ZZ	Automobiles	Miles	144	12,000 mi.	8	100,000
102	ZY	Automobiles, Electric	Miles	144	12,000 mi.	8	100,000
200	ZA	Pickup <6200 GVW, Small	Miles	144	12,000 mi.	8	100,000
202	ZP	Pickup <6200 GVW, Large	Miles	144	15,000 mi.	8	125,000
204	ZQ	Pickup, 6300-9000 GVW	Miles	144	15,000 mi.	8	125,000
206	ZT	Truck, POE Rover	Miles	144	25,000 mi.	5	125,000
207	ZX	Pickup 4 x 4, Small	Miles	144	15,000 mi.	8	125,000
208	XK	Pickup 4 x 4, Large	Miles	144	12,000 mi.	8	100,000
209	XL	Truck, 4 x 4, Utility	Miles	144	12,000 mi.	8	100,000
210	ZB	Vans, 4 x 2, Small	Miles	144	12,000 mi.	8	100,000
211	XM	Vans, 4 x 2, Full Size	Miles	144	12,000 mi.	8	100,000
212	XJ	Vans, 4 x 2, Testing	Miles	144	15,000 mi.	8	125,000
214	CK	Vans, 4 x 2, Photolog	Hours	144	600 hrs.	8	200,000
215	T2	Vans, 4 x 2, T2 Program	Miles	144	12,000 mi.	8	10,000
218	ZC	Suburbans 4 x 4	Miles	144	12,000 mi.	8	100,000
220	XA	Pickup, >9000 GVW, Reg. Cab	Miles	144	12,000 mi.	8	100,000
221	XB	Pickup, >9000, Crew Cab	Miles	144	15,000 mi.	8	125,000
222	XC	Truck, >9000, Flatbed	Miles	144	12,000 mi.	8	100,000
223	XD	Truck, 9000 - 15,000 GVW Utility	Miles	144	12,000 mi.	8	100,000
224	XE	Truck, Incident Response Unit	Miles	144	30,000 mi.	5	150,000
225	XF	Truck >15,000 GVW Utility	Miles	144	12,000 mi.	12	150,000
226	XG	Truck, <15,000 GVW, Reg. Cab, Dump	Miles	144	12,000 mi.	8	100,000
227	XH	Truck, <15,000 GVW, Crewcab, Dump	Miles	144	12,000 mi.	8	100,000
228	XI	Truck, >15,000 GVW Dump	Miles	144	12,000 mi.	12	150,000
230	TS	Stencil Truck	Hours	100	400 hrs.	8	100,000
TRUCKS, 20-35,000 LB GVW							
321	AB	Dump, Patrol 4x2 Diesel Truck	Hours	120	450 hrs.	12	200,000
322	AC	Distributor 4x2 Truck	Hours	24	200 hrs.	24	300,000
324	AD	Flatbed 4x2 Truck	Hours	30	300 hrs.	12	200,000
326	AG	Crash Attenuator Truck	Hours	30	300 hrs.	24	300,000
327	AI	Water Truck - Diesel	Hours	30	300 hrs.	12	300,000
328	BC	De-Icer Truck	Hours	50	200 hrs.	24	300,000
329	AE	Skid Test Truck	Hours	100	400 hrs.	12	150,000
335	KA	Hot Patcher Truck	Hours	50	200 hrs.	24	300,000
336	KB	Utility 4x2, 4x4 Truck	Hours	70	500 hrs.	24	300,000
337	AF	Sprayer Truck	Hours	30	300 hrs.	12	150,000
338	KC	Aerial Tower < 30 ft. Truck	Hours	144	550 hrs.	12	150,000
339	KD	Aerial Tower > 30 ft. Truck	Hours	50	400 hrs.	12	200,000
340	KE	Digger Derrick Truck	Hours	144	550 hrs.	12	200,000
342	AH	Striping Unit Truck	Hours	120	800 hrs.	12	200,000
347	KF	Scale Test/Post Driver-Diesel Truck	Hours	30	300 hrs.	24	300,000
352	CC	Snow Plow V and Wing Truck	Hours	20	25 hrs.	20	
364	AJ	Rotary Snow Plow Truck	Hours	20	75 hrs.	20	

## EQUIPMENT CATEGORIES, LIFE, RENTAL RATE

Category	Class	Description	Meter Type	Yearly Target Utilization Days	Miles/Hours	Replacement Life Years	Mileage
TRUCKS, 3-AXLE 43 - 65,000 LB GVW							
372	AK	Sander/Dump Truck	Hours	120	800 hrs.	12	250,000
373	KG	Rockbed Truck	Hours	120	800 hrs.	12	250,000
374	AY	Sander/Dump Truck w/Wing Plow	Hours	120	800 hrs.	12	250,000
375	AL	Core Drill Truck	Hours	30	300 hrs.	12	300,000
376	AM	Tractor Truck	Hours	100	600 hrs.	12	300,000
379	KH	Snooper Truck	Hours	100	450 hrs.	12	
390	BX	Distributor > 1300 Gallons Truck	Hours	24	200 hrs.	12	300,000
392	KI	Multipurpose Truck	Hours	120	800 hrs.	12	250,000
393	KJ	Water Truck >2500 Gallons	Hours	100	450 hrs.	12	250,000
WHEEL TRACTORS							
401	AP	Backhoe	Hours	50	350 hrs.	12	
402	AN	Loader 1/2 C.Y.	Hours	20	150 hrs.	12	
404	LS	Loader Skid-Steer	Hours	30	250 hrs.	12	
406	LQ	Loader 1-1/2 - 2 C.Y.	Hours	30	250 hrs.	15	
407	LI	Loader 2 - 3 C.Y.	Hours	60	400 hrs.	15	
408	LL	Loader 4 C.Y.	Hours	60	400 hrs.	15	
CRAWLER TRACTOR							
424	AQ	Dozer, Medium	Hours	60	400 hrs.	15	
426	CF	Dozer, Heavy	Hours	60	500 hrs.	15	
MOTORGRADER							
506	AU	Milling Machine	Hours	30	100 hrs.	15	
508	AR	Motor Grader, 6 x 4	Hours	50	300 hrs.	15	
510	AS	Motor Grader, 6 x 6	Hours	50	300 hrs.	15	
600	PH	Pull Grader	Hours	20	100 hrs.	15	
610	PG	Pull Windrower	Hours	10	50 hrs.	15	
SNOWPLOWS							
705	ZI	Under Body SnowPlow	None	None Required		12	
706	ZI	Wing Plow, Grader Mt.	None	None Required		12	
707	ZI	Wing Plow, Truck Mt.	None	None Required		12	
710	ZI	Snow Plow, V-Type, Fixed	None	None Required		12	
711	ZI	Snow Plow, V-Type, Folding	None	None Required		12	
713	PF	Rotary Snow Plow, Loader Mounted	Hours	20	75 hrs.	12	
714	ZI	Snow Plow, One-Way	None	None Required		12	
715	ZI	Snow Plow, Two-Way	None	None Required		12	

## EQUIPMENT CATEGORIES, LIFE, RENTAL RATE

Category	Class	Description	Meter Type	Yearly Target Utilization Days	Miles/Hours	Replacement Life Years	Mileage
AIR EQUIPMENT							
799	ZI	Compressor 0-50 CFM	None	None Required		12	
800	AT	Compressor 50-160 CFM	Hours	20	100 hrs.	12	
802	AA	Compressor 160 + CFM	Hours	25	150 hrs.	12	
804	ZI	Jackhammer/Rockdrill	None	None Required		8	
805	ZI	Breaker (Pavement), Tamper	None	None Required		8	
806	ZI	Sandblaster	None	None Required		12	
ASPHALT EQUIPMENT							
810	ZI	Distributor < 5000 Litre (1300 Gallons)	None	None Required		12	
811	ZI	Distributor > 5000 Litre (1300 Gallons)	None	None Required		12	
812	AW	Hot Patcher, Truck Mount	Hours	20	100 hrs.	12	
813	AV	Distributor, Tow Type	Hours	25	120 hrs.	12	
814	CV	Crack Filler	Hours	25	120 hrs.	12	
815	CY	Tail Gate Mixer/Patcher	Hours	15	50 hrs.	12	
816	AX	Portable Asphalt Mixer, Tow Type	Hours	15	50 hrs.	12	
818	CA	Laydown Machine, Self-Propelled	Hours	50	350 hrs.	15	
819	CH	Laydown Machine, Pull Type	Hours	25	120 hrs.	13	
821	FA	Pavement Testing Trailers	Hours	100	350 hrs.	12	
822	ZI	Chip Spreader, Pull Type	None	None Required		12	
823	AZ	Chip Spreader, Self-Propelled	Hours	15	50 hrs.	12	
BOATS AND BARGES							
825	CN	Barge	Hours	5	10 hrs.	10	
826	CJ	Boat	Hours	15	60 hrs.	10	
827	ZI	Boat Motor	None	None Required		10	
828	ZI	Boat Trailer	None	None Required		10	
CONCRETE EQUIPMENT							
831	BA	Concrete Mixer	Hours	10	40 hrs.	12	
832	BU	Mortar Mixer	Hours	10	40 hrs.	12	
833	BB	Concrete Saw	Hours	10	40 hrs.	10	
834	BV	Concrete Cutoff Saw	Hours	10	40 hrs.	10	
835	CQ	Scabbler	Hours	10	40 hrs.	10	
836	CR	Crack Cleaner/Router	Hours	15	60 hrs.	8	
837	ZI	Misc. Compactors (Screed, Trowel, Wacker, Compactor)	None	None Required		8	
EARTH DRILLING EQUIPMENT							
841	ZI	Earth Drilling Auger	None	None Required		10	
844	ED	Diamond Drill	Hours	5	10 hrs.	12	
846	DA	Abrasive Drill	Hours	20	100 hrs.	10	

## EQUIPMENT CATEGORIES, LIFE, RENTAL RATE

Category	Class	Description	Meter Type	Yearly Target Utilization Days	Miles/Hours	Replacement Life Years	Mileage
FORKLIFTS, YARD CRANES							
847	FT	Forklift, Truck Mount	Hours	80	500 hrs.	12	
848	FS	Forklift, <4,000 lb.	Hours	30	300 hrs.	13	
849	FM	Forklift, 8,000 - 10,000 lb.	Hours	90	400 hrs.	13	
850	FL	Forklift >10,000 lb.	Hours	90	400 hrs.	13	
851	WC	Yard Crane	Hours	30	200 hrs.	12	
852	WT	Yard Tug	Hours	30	200 hrs.	12	
853	WF	Electric Warehouse Equipment	Hours	30	100 hrs.	12	
LOADER, CONVEYOR							
860	BE	Conveyor (Belt) Screener Plant	Hours	30	150 hrs.	10	
861	BG	Loader, Belt or Bucket	Hours	30	150 hrs.	10	
MOWERS							
864	MT	Self-Propelled Lawn Tractor	Hours	20	100 hrs.	5	
865	ZI	Lawn Mower, Push Type/Self-Propelled	None	None Required		5	
866	ZI	Road Side Mower, Sickle	None	None Required		12	
867	ZI	Road Side Mower, Rotary	None	None Required		12	
868	CB	Chipper, Brush	Hours	30	300 hrs.	10	
869	ZI	Road Side Mower, Slope	None	None Required		12	
870	ZI	Road Side Mower, Flail	None	None Required		12	
WATER PUMPS							
872	BJ	Water Pump, Light Duty < 3-1/2"	Hours	10	20 hrs.	13	
873	BI	Water Pump, Heavy Duty 4" and Up	Hours	10	20 hrs.	13	
ROLLERS							
878	BQ	Roller, Pneumatic	Hours	10	50 hrs.	12	
879	BK	Roller, Steel Flat, Self-Propelled	Hours	20	200 hrs.	12	
880	BL	Roller, Small Dual Drum Vibrating Steel	Hours	20	200 hrs.	12	
881	BN	Roller, Large Single Drum Vibrating Steel	Hours	30	250 hrs.	12	
SANDERS							
884	ZI	Tow-Type Sander	None	None Required		7	
885	ZI	5 C.Y. Slide-In Sander	None	None Required		12	
886	ZI	5 C.Y. Truck Mounted Sander	None	None Required		12	
887	ZI	9 C.Y. Truck Mounted Sander	None	None Required		12	
888	ZI	9 C.Y. Slide-In Sander	None	None Required		12	
889	ZI	Salt Spreader	None	None Required		7	

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FIGURE 700-5

## EQUIPMENT CATEGORIES, LIFE, RENTAL RATE

Category	Class	Description	Meter Type	Yearly Target Utilization Days	Miles/Hours	Replacement Life Years	Mileage
SHOVELS							
902	DL	Excavators	Hours	100	750 hrs.	15	
905	DT	Trencher	Hours	10	50 hrs.	15	
906	ZI	Motorgrader Attachment	None	None Required		12	
SWEEPERS							
907	CG	Street Sweeper Mechanical	Hours	50	350 hrs.	13	
908	CM	Tow-Type Sweeper	Hours	20	120 hrs.	12	
909	CL	Self-Propelled Sweeper	Hours	30	250 hrs.	10	
910	CI	Street Sweeper Vacuum	Hours	50	350 hrs.	13	
WATER TANKS							
911	ZI	<1500 Gallon Skid-Mt De-Icer Tank	None	None Required		10	
912	ZI	> 1500 Gallon Skid-Mt Water Tank	None	None Required		12	
913	ZI	Weed Sprayer Tank	None	None Required		12	
TRAILERS							
915	ZI	Trailer, Semi Low-Boy (Flatbed)	None	None Required		12	
916	ZI	Trailer, Semi Belly-Dump	None	None Required		12	
918	ZI	Test Camper	None	None Required		8	
919	TB	Trailer, Test, and Office	Hours	150	950 hrs.	12	
920	BR	Trailer, Tilt Bed/Ramp	Hours	30	150 hrs.	12	
921	TU	Trailer, Utility, 2 & 4-Wheel	Hours	25	120 hrs.	12	
922	BS	Trailer, Sign, Warning	Hours	25	120 hrs.	12	
923	BM	Trailer, Message	Hours	25	250 hrs.	10	
MISCELLANEOUS							
926	LP	Light Plant	Hours	10	40 hrs.	10	
930	ZI	Generators	None	None Required		10	
931	WE	Welder	Hours	30	200 hrs.	10	
932	GE	Skid Mt. Generator	Hours	180	1500 hrs.	3	
953	ZI	Grain Drill, Harrow	None	None Required		15	
954	ZI	Chain Saw	None	None Required		5	
956	ZI	Tamper, Hydraulic	None	None Required		8	
958	ZI	Misc. Yard Equipment	None	None Required		5	
963	BZ	Hydroseed/Mulcher	Hours	10	50 hrs.	15	
965	MS	Mini-Striper	Hours	50	300 hrs.	8	
966	BY	Hand Striper	Hours	10	50 hrs.	10	
967	ZI	Sign Washer/Sprayer	None	None Required		8	
971	SR	Stripe Remover	Hours	5	25 hrs.	10	
972	BW	ATV (4 Wheeler or Motor Vehicle)	Hours	50	200 hrs.	5	

**745.0 BID AND AWARD**

Bid specifications are submitted to the Procurement and Material Management (P&MM) section for the bid process. For all requisitions in excess of \$25,000, the specifications are forwarded to the Division of Purchasing (DOP) for bidding. The Division of Purchasing is responsible for responding to all questions regarding the bid and the opening of the bids at the stated time.

After the bids have been received and opened by the DOP, they are then returned to the Maintenance Section for evaluation. The Maintenance Section makes a recommendation to the DOP as to the successful responsive bidder. The DOP in turns notifies all responding bidders of the intent to award and then notifies the P&MM section to forward a Purchase Order to the successful responsive bidder.

**746.0 EQUIPMENT DELIVERY AND INSPECTION**

As part of the bid specifications, the Maintenance Section will determine the delivery location of the vehicles and equipment. All light duty vehicles and truck cab and chassis will be delivered to headquarters so that licensing can be accomplished by the Headquarter's Garage. All equipment that is to be accompanied with operator training will be delivered to the district requesting the equipment.

**746.1 Headquarters**

All equipment delivered to headquarters will be inspected by Maintenance Section personnel for specification compliance. If the units meet specifications, they will then be tagged with the appropriate district and equipment number. The district will be notified that the unit is ready to be picked up and transferred to their location

Refer to Figure 700-6.

**746.2 Districts**

Equipment that is delivered to the district will be inspected by District Shop personnel for specification compliance. The district is required to contact the Maintenance Section for a copy of the bid specifications so the inspection can be performed. Inspection time shall be charged to Activity EB84.

Once the district has determined that the unit complies with the specifications, the specifications are to be signed by the person completing the inspection along with the corresponding serial and equipment numbers of the unit. The completed specifications are to be returned to the Maintenance Section along with the completed Equipment Specification Sheet, ITD-256.

Refer to Figure 700-6.

For all equipment that does not meet specifications, the Headquarters Garage or district is to inform the Maintenance Section of the specification deviations. The Equipment Superintendent will contact the vendor and inform them of the non-compliance and that the units will not be paid for until all deviations are corrected.

The person completing the equipment inspection is not to sign the specifications until the unit is modified to meet the specifications. At this time final payment can be made for the unit.

## **750.0 EQUIPMENT TRAINING**

### **750.1 Operator**

Equipment operator training is provided to Department personnel on an on-going basis and as new equipment is received. New equipment training is provided by the vendor supplying the equipment while general operator training is developed jointly by the Division of Highways, Technical Training Group and Maintenance Section.

#### **750.1.1 Vendor Provided**

As new equipment is purchased, the Maintenance Section will require as part of the bid specifications that the successful vendor provide a minimum of 4 hours of operation training to Department personnel. Additional hours of training will be required for more technical equipment.


If additional training regarding a specific piece of equipment is required, the District Training Committee is to contact the Division of Highways Technical Training Group requesting the training in accordance to the Training Catalog. This is not limited to just new equipment but pertains to existing equipment. The Division of Highways Technical Training personnel will do everything possible to coordinate a cost effective and viable training program.

#### **750.1.2 ITD Training**

The Division of Highways Technical Training Section in conjunction with the Maintenance Section is responsible for development of the training program for equipment operator. This training is developed to include all major types of equipment.

The training will coincide with the training requirements of the Transportation Technician Series and in accordance with the guideline in the Training Catalog.

Figure 700-6

<b>ITD-256 3-88</b>	<b><u>EQUIPMENT SPECIFICATION SHEET</u></b>	
<b>EQUIPMENT No.</b> _____ <b>YEAR</b> _____ <b>MAKE</b> _____		
<b>MODEL No.</b> _____ <b>SERIAL No.</b> _____		
<b><u>ENGINE INFORMATION</u></b>		
<b><u>GAS</u></b> <span style="margin-left: 200px;"><b><u>DIESEL</u></b></span>		
<b>MAKE</b> _____ <b>MAKE</b> _____		
<b>MODEL</b> _____ <b>MODEL</b> _____		
<b>SERIAL No.</b> _____ <b>SERIAL No.</b> _____		
<b>NUMBER OF CYLINDERS</b> _____ <b>NUMBER OF CYLINDERS</b> _____		
<b><u>CHASSIS INFORMATION</u></b>		
<b>GVW RATING</b> _____ <b>C.A. DIMENSIONS</b> _____ <b>INCHES</b>		
<b>WHEELBASE</b> _____ <b>TIRE SIZE: F</b> _____ <b>R</b> _____		
<b>TRANS. MAKE</b> _____ <b>MODEL</b> _____ <b>No. SPEEDS</b> _____		
<b>REAR AXLE MAKE</b> _____ <b>MODEL No.</b> _____ <b>No. SPEEDS</b> _____		
<b><u>BODY INFORMATION</u></b>		
<b>MAKE</b> _____ <b>MODEL</b> _____ <b>CAPACITY</b> _____ <b>BODY TYPE</b> _____		
<b>HOIST MAKE</b> _____ <b>MODEL</b> _____ <b>SERIAL</b> _____ <b>SIZE</b> _____		
<b>REMARKS</b> _____		
<b><u>EQUIPMENT ATTACHED</u></b>		
<b>EQUIP. No.</b> _____ <b>YEAR</b> _____ <b>MAKE</b> _____ <b>TYPE</b> _____		
<b>LOADER MAKE</b> _____ <b>MODEL</b> _____ <b>SERIAL No.</b> _____		
<b>BROOM MAKE</b> _____ <b>MODEL</b> _____ <b>SERIAL No.</b> _____		
<b>DOZER MAKE</b> _____ <b>MODEL</b> _____ <b>SERIAL No.</b> _____		
<b>ROTARY MAKE</b> _____ <b>MODEL</b> _____ <b>SERIAL No.</b> _____		
<b>WINGS</b> _____ <b>MODEL</b> _____ <b>SERIAL No.</b> _____		
<b>OTHER</b> _____ <b>MODEL</b> _____ <b>SERIAL No.</b> _____		
<b><u>USE OTHER SIDE FOR ADDITIONAL INFORMATION</u></b>		
<b>INSPECTED BY:</b> _____		
<b>DATE:</b> _____		
<b>DISTRICT:</b> _____		

**750.2      Mechanic**

Mechanics, Mechanic Assistants, Welder/Machinists, and Body/Fender persons, have very diverse training needs. A listing of possible courses is contained in the Training Catalog. Additional needs and training request will need to be submitted through the District Training Committee to the Training Steering Committee, allowing the DOH Training Section to identify possible training sources and needs.

**750.3      Equipment Roadeo**

The Maintenance Section is responsible for the continued development of an Equipment Roadeo program that is to be conducted by each district. All foremen, operators, and mechanics are encouraged to participate at the district level. Each district will organize a Roadeo to be held in the spring of each year. The three (3) highest scoring operators/mechanics along with the highest finishing foreman from each district competition will then progress to a statewide Roadeo that will rotate from district to district.

The top two (2) finishers of the statewide Roadeo will be asked to participate in a national or regional competition that is held during the Fall of each year.

**760.0      EQUIPMENT MAINTENANCE****760.1      Shop Operations**

Each district is responsible for performing maintenance on the equipment assigned to the district. The Shop Superintendent is to be responsible for the daily operation of the shop facility and it is their responsibility to ensure that all equipment is maintained in an efficient and safe manner.

Since the majority of the information received that is loaded into the Equipment Management System is derived from shop operations, the accuracy of this information is critical to determining the equipment needs of the district. Therefore, the Shop Superintendent is responsible for making sure that all necessary documentation is completed accurately.

**760.1.1      Job Orders**

The shop Job Order is the primary document for the Equipment Management System. It documents, by unit, specific data such as what repairs were completed, who did the work and the number of hours required. This document is to be completed for all equipment repairs irregardless of whether the repair was performed in house or outsourced. This document is used to determine repair hours, type of repair, and downtime.

Refer to the Equipment Management System Manual section 30-502.02 for detailed instruction regarding the use of this document.

**760.1.2 Downtime**

To accurately determine the cost of repairing equipment, a record must be maintained of the amount of hours that is required to repair a piece of equipment along with the amount of hours the unit is idle waiting for service. An activity has been developed for the Equipment Management System that is to be used for charging utilization to the equipment while it sits waiting for repair. The maximum amount of time charged to each unit on a daily basis is the amount of time that the shop completing the repair is scheduled to work on a daily basis.

This information can be utilized to determine the staff requirements of the Department's repair facilities, as well as the amount of shop space required.

**760.1.3 Repair Privatization**

The Shop Superintendent or designee is to determine the most economical approach possible for repairing vehicles and equipment. The Shop Superintendent is to determine if the repair is to be completed by Department personnel or to have the unit repaired by a private vendor. Each repair situation is to be considered on an individual basis, but it is encouraged that the private sector be contacted on a random basis to compare the costs of privatization versus Department performed repairs.

**760.1.4 EMS Activity Codes**

The Equipment Management System was designed to help supervisors monitor performance and cost of the equipment fleet without an excess of paperwork. In addition, it will also assist managers in making decisions regarding preventive maintenance, utilization and replacement.

In order for the system to work, fleet information must be collected and summarized. The majority of this information has to come from the field such as which units are being repaired and what types of repairs are being made.

EMS activity codes are used to describe the kinds of repair and maintenance work being performed on vehicles and equipment. When using the activity codes, remember the following:

1. Review the activities and descriptions. Become familiar with the basic structure and descriptions.
2. Make sure the correct activity code is recorded on the job order and preventive maintenance form. If uncertain, check with the Shop supervisor.
3. The activity codes are general in nature and may not specifically define the type of work you are performing. Utilize the descriptions to assist you in determining the correct activity.

Accurate reporting is essential to making sound logical decisions regarding the management of the equipment fleet.

Refer to Figure 700-7 and the EMS Manual.

#### **760.1.5 Satellite Mechanics**

The Department maintains a full service repair facility in each of the districts. It is at these or commercial facilities that vehicle and equipment repairs are to take place. However, it is recognized that some District Maintenance facilities are located a great distance from the central repair facility. At these locations, a mechanic can be stationed to perform routine maintenance of the vehicles and equipment located at that maintenance facility. All major repairs are to be performed at the main district repair facility as these facilities have been equipped to perform this type of work.

Before placing a mechanic at one of these remote locations, the district is to conduct a cost/benefit analysis showing the additional costs to the Department for a mobile shop vehicle and required tooling along with the expected pay-back period. The Maintenance Section will review the analysis with final approval being that of the Assistant Chief Engineer (Operations).

#### **760.1.6 Traveling Mechanics**

As part of its equipment fleet, each district is to maintain a complement of at least one shop service truck. This unit is to be utilized to conduct emergency repairs of equipment at various job sites located in the district. Each vehicle will be equipped with an electric arc welder, oxy/acetylene system, and stocked with minor repair parts.

It is the responsibility of the Shop Superintendent to determine if these units are to be staffed full time or on a part time basis.

#### **760.1.7 Service Station Operations**

The Shop Superintendents are responsible for assigning duties to the personnel assigned to the District Service Station. Typical duties include routine preventive maintenance such as oil changes, chassis lube miscellaneous tire work and other duties assigned.

#### **760.1.8 Body and Fender Repair**

Clean, well maintained, and nice appearing equipment is essential in maintaining a good public image. All equipment is to be kept painted in accordance with Section 716.0 of this manual.

It is the district's responsibility to ensure that as vehicles and equipment require body and fender repair, that that repair is completed in a timely manner.

Figure 700-7  
**SHOP ACTIVITIES**  
**NOVEMBER 1993**

<u>DESCRIPTION</u>	<u>ACTIVITY CODE</u>	<u>DESCRIPTION</u>	<u>ACTIVITY CODE</u>
<b>CHASSIS</b>		<b>POWER TRAIN</b>	
<u>Air Brakes</u>		<u>Axles - Drive</u>	
Brake Shoes or Pads	EA11	All Components	EA 21
Other Components	EB11		
Adjust Brakes	EC11	<u>Clutch</u>	
		All Components	EA22
<u>Frame</u>		Adjust Clutch/Clutch Brakes	EB22
Frame, Cross-members	EA13		
Body Mounts, Spring		<u>Drive shafts</u>	
Hangers, Motor Mounts/ Supports, Bumper		Vehicle Driveshaft	EA23
Trailer Hitch, Spreader Hitch and Fifth Wheel	EB13	<u>Power Take off</u>	
		All Components	EA24
<u>Hydraulic Brakes</u>		<u>Transmission Repair</u>	
Brake Shoes or Pads	EA14	Transmission	EA25
Other Components	EB14	Transfer Case	EB25
Adjust Brakes	EC14	Torque Converter	EC25
Computer Control System	ED14	Adjust Transmission	ED25
<u>Steering</u>		<u>Transmission Replace</u>	
All Components	EA15	Replace Transmission	EA26
<u>Suspension</u>		<u>Heavy Eq. Torque Converter</u>	
All Components	EA16	Torque Converter	EA27
<u>Wheel</u>		<b>POWER PLANT</b>	
Wheel Bearings and Seals	EA17	<u>Air Intake</u>	
Other Components	EB17	All Components	EA31
<u>Alignment</u>		<u>Cooling System</u>	
All Wheel Alignment	EA18	Water Pump	EA32
		Radiator	EB32
		Other Components	EC32
		<u>Exhaust System</u>	
		Muffler	EA33
		Other Components	EB33

Figure 700-7 (Cont'd)  
**SHOP ACTIVITIES**  
**NOVEMBER 1993**

DESCRIPTION	ACTIVITY CODE	DESCRIPTION	ACTIVITY CODE
<b>POWER PLANT</b> (cont'd)		<b>ELECTRICAL</b> (cont'd)	
<u>Fuel System</u>		<u>Lighting System</u>	
All Components	EA34	Emergency Flashing Lights	EA45
		Wiring	EB45
<u>Power Plant Repair</u>		Standard Lights	EC45
Short Block	EA35		
Complete Overhaul	EB35	<u>Engine Belts</u>	
Valve Job	EC35	Belts, Idler Pulleys, &	EA46
Camshaft	ED35	Adjustment Brackets	
Timing Chain, Gears,	EE35		
Engine Drive Components		<b>CAB AND BODY</b>	
Lubrication System	EF35	<u>Air Conditioning</u>	
Gaskets and Seals	EG35	All Components	EA51
<u>Power Plant Replacement</u>		<u>Cab/Body</u>	
Replace Engine	EA36	Body Panels and Components	EA52
		Windshields & Glass Work	EB52
<u>Turbo and Super Charger</u>			
All Components	EA37	<u>Cab/Heating, Ventilation</u>	
		All Components	EA56
<u>Retarders</u>			
All Components	EA38	<u>Interior</u>	
		All Components	EA57
<b>ELECTRICAL</b>			
<u>Battery</u>		<b>MISCELLANEOUS</b>	
All Components	EA41	<u>Accessories</u>	
		All Components	EA61
<u>Charging System</u>			
All Components	EA42	<u>Broom and Roller Components</u>	
		All Components	EA62
<u>Cranking System</u>			
All Components	EA43	<u>Chains, Sprockets</u>	
		All Components	EA63
<u>Ignition System</u>			
Tune-Up	EA44	<u>Cleaning/Painting</u>	
Computer Control System	EB44	Painting	EA64
Analyzer Time, Road Testing	EC44	Steam Cleaning	EB64
		Sand Blasting	EC64

Figure 700-7 (Cont'd)  
**SHOP ACTIVITIES**  
**NOVEMBER 1993**

DESCRIPTION	ACTIVITY CODE	DESCRIPTION	ACTIVITY CODE
<b>MISCELLANEOUS</b> (cont'd)		<b>MISCELLANEOUS</b> (cont'd)	
<u>Crawler Undercarriage</u>		<u>Emission Testing</u>	
All Components	EA65	All Tests	EA78
<u>Water Pump, Air Compressor</u>		<u>Emission Control System</u>	
All Components	EA66	All Components	EA79
		Adjust System	EB79
<u>Hydraulic Components</u>		<b>PREVENTATIVE MAINTENANCE</b>	
Hydraulic Pump	EA67	<u>PM Type "A"</u>	
Control Valves	EB67	Motor Oil Change	EA81
Other Components	EC67	Transmission Oil Change	EB81
Hydraulic Sys. Troubleshooting	ED67	Differential Oil Change	EC81
		Hydraulic Oil Change	ED81
<u>Attached Equipment</u>		<u>PM Type "B"</u>	
All Components	EA68	Chassis Lube	EA82
<u>Asphalt Equipment</u>		<u>PM Type "C"</u>	
Distributor	EA69	90 Day Service	EA 83
Crack Sealer	EB69		
Recycler & Hot Patchers	EC69		
<u>Seasonal Conversion</u>		<u>PM Type "D"</u>	
All Components	EA71	Major Inspection and Minor Adjustment	EA84
<u>Building Equipment</u>		New Equipment Inspection and Adjustments	EB84
All Equipment	EA72	Aerial Equipment, Major Inspection & Minor Adjustments	EC84
Striping and Weed Sprayer			
<u>Units Maintenance</u>		<b>RECYCLING</b>	
Striping and Weed Sprayer Maintenance by Operator	EA74	Recycling Oil and Oil Filters	EA89
<u>Tires</u>		<b>DOWNTIME</b>	
Tires	EA75	Labor	EA91
<u>Mechanic Travel</u>		*Note*	
Mechanic Travel	EA76	EA72, EA77, EA80 and EA89 ARE ONLY REPORTED ON TIMESHEETS. EA74, EA75 & EC84 CAN BE REPORTED ON TIMESHEETS OR JOB ORDERS.	
<u>Service Man/Operator</u>			
Minor Maintenance/Cleaning/Washing	EA77		

**760.2 Major Repair/Overhaul**

For equipment needing major repairs or overhauls, an ITD-5112 must be submitted to the Equipment Superintendent for his approval prior to making repairs. Refer to Figure 700-8.

**760.3 Preventive Maintenance**

The preventive maintenance program establishes uniform operating procedures throughout the state for the following:

- Lubrication, cleanup, and inspection of vehicles at scheduled intervals. Each supervisor should set a time (two hours a week should be sufficient) to be used for equipment maintenance, cleanup, and safety inspections.

Refer to Figures 700-9 and 700-10.

- General service and tune-up of vehicles at scheduled intervals.
- Reporting vehicle and equipment deficiencies.

**760.3.1 Theory**

An important element of the Maintenance management program is the planning and scheduling of periodic preventive maintenance services on equipment. The purpose of preventive maintenance is to keep equipment in a safe and serviceable condition and to detect and correct minor deficiencies before they develop into costly repairs and costly downtime of crews.

Effective and economic preventive maintenance services require a systematic scheduling program that makes equipment available for mechanical inspections, lubrications, adjustments, and necessary repairs at predetermined intervals, minimizing downtime and resultant costly disruptions of work schedules due to equipment failures. Be aware that there is an economical point, at which the random failure of equipment can be reduced by preventive maintenance. Experience indicates that the optimum ratio is three scheduled services to one emergency repair, excluding tire and battery repair. At this rate, approximately 75 percent of the work can be planned and scheduled.

**760.3.2 Objectives**

The objectives of the preventive maintenance program are to increase utilization and minimize downtime; detect abnormal conditions or deficiencies before breakdown occurs; provide a method for scheduling services and routine repairs; and provide a uniform system for reporting and recording work accomplished.

ITD-5112 3-91

REQUEST FOR MAJOR EQUIPMENT REPAIR

EQUIPMENT NO.: \_\_\_\_\_ DIST. NO.: \_\_\_\_\_ DATE: \_\_\_\_\_

MAKE/MODEL/YEAR: \_\_\_\_\_

TYPE OF REPAIR: \_\_\_\_\_

ESTIMATED REPAIR COST: \_\_\_\_\_ REQUESTED BY: \_\_\_\_\_  
Dist. Mtce. Engineer

COMMENTS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

HEADQUARTER'S MAINTENANCE OFFICE ONLY

COMPLEMENT STATUS \_\_\_\_\_ UTILIZATION  
AVERAGE \_\_\_\_\_%  
(Past 2 Years)

EQUIPMENT VALUE \$ \_\_\_\_\_ AFTER REPAIR COMPLETED

☐ APPROVED

☐ DISAPPROVED

BY: \_\_\_\_\_  
EQUIPMENT SUPERINTENDENT

COMMENTS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Figure 700-9

<b>PREVENTIVE MAINTENANCE INSPECTION</b> <b>EQUIPMENT - SPECS</b>					
ITD-685 12-93 W 27-032455-1	Equipment No. _____ Engine Size _____ Make/Model _____	Type Fuel _____ Fuel Filter # _____ Fuel Capacity _____	Eng. Oil _____ Oil Filter # _____ Tire Pres. _____	Fan Belt _____ P.S. Belt _____ Alt. Belt _____	Hyd. Oil _____ Trans. Oil _____ Diff. Oil _____
Preventive Maintenance <input type="text"/> Miles <input type="text"/> Hours    (check one)		<p><b>PM (A) E981 - Change engine oil and filters every 1,500/100 km/hours (3,000/100 miles/hour) for gasoline; 3,000/100 km/hours (6,000/100 miles/hour) for diesel trucks.</b> Items needing attention will be noted on ITD-659 and scheduled for correction. Oil samples of crankcases, hydraulic systems, and gear cases will be taken at specified intervals to determine wear characteristics. When PM (A) is completed, forward white copy to District Shop. District Shop will forward to Data Entry. After Data Entry is completed, white copy may be filed in equipment file. The yellow copy stays in PM book. Chassis Lube done in conjunction with this oil change is included in this activity. <u>Operator will perform this PM (A)</u></p> <p><b>PM (B) E982 - Chassis lube every 1,500/100 km/hours (3,000/100 miles/hours).</b> Lubrication and inspection of all wear points as specified in owner's manual and the preventive maintenance lube sheet for the type of unit involved. This service includes a safety inspection of wear items, leaks, and abnormalities. Items needing attention will be noted on ITD-659 and scheduled for correction. Forward white copy to shop as in PM (A). <u>Operator will perform this PM (B)</u></p> <p><b>PM (C) E983 - The "nonscheduled" equipment inspection is performed every 90 days without specified scheduling. Form No. DH-1764 is used as a checklist for PM compliance and equipment condition report. <u>District Traveling Mechanic will perform this PM (C)</u></b></p> <p><b>PM (D) E984 - The "scheduled equipment" inspection is performed on a scheduled basis every other year or 9,000/600 km/hours (18,000/600 miles/hours), whichever comes first. Form DH-1741 is used as a checklist for items to be inspected and deficiencies corrected. Process white copy as instructed in PM (A) for shop superintendent to keep in his file. <u>District Main Shop Mechanic will perform this PM (D)</u></b></p>			


  

<b>Driver Daily Checklist (Report Deficiencies on ITD-659)</b>			
Leaks, General	Walk around and look	Tires/Wheels	Check cuts and loose lugs
Belts/Hoses	Frayed, Torn, Leaking, Etc.	Brakes	Test before leaving yard
Engine Oil	Carefully check dipstick	Clutch	Check before leaving yard
Engine Warmup	1 to 5 minutes	Horn	Test
Fuel	Fill tank every evening	Steering	Jerks, pulls, wanders
Gages	Check, must function	Windshield Wipers	Motor, arms, and blades
Lights/Signals	Check, must function	Unusual Noises	Report
Radiator	Core clean	Taillights	Lens clean

Figure 700-10

ITD-659 (1-88)

## PREVENTIVE MAINTENANCE EQUIPMENT MANAGEMENT



EQUIPMENT NUMBER

METER READING

MILES  
HOURS

Vehicle Description

Org. Code  Location

EA81 MOTOR OIL  
E381 TRANSMISSION OIL

EC81 DIFFERENTIAL OIL  
ED81 HYDRAULIC OIL

EA82 CHASSIS LUBE  
EA83 90-DAY SERVICE

DATE			LABOR				WORK UNITS COMPLETE
MO.	DAY	YR.	LAST NAME (per form)	SOCIAL SECURITY NUMBER	ACT. NO.	HOURS	

✓ OIL SAMPLE(S) TAKEN

☐ Motor Oil

☐ Transmission Oil

☐ Differential Oil

☐ Hydraulic Oil

Include a Completed  
ITD-945 With Each Sample

COMMENTS \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Performed By

Checked By

**760.3.3 Types of Service**

All listed preventive maintenance activities (EA81, EB81, EC81, ED81, EA82, EA83) and all oil sampling is the responsibility of ITD employees assigned to operate the vehicle and/or equipment.

When changing oils and filters, note items needing attention on Form **ITD 0659**, from which the Shop Superintendent schedules corrections.

All preventive maintenance work shall be completed before scheduling an annual vehicle and/or equipment inspection with the shop.

**760.3.3.1 Oil Change - EA81, EB81, EC81, ED81 (PM Type A)**

EA81, EB81, EC81, ED81 activities are divided into service and sampling intervals.

This PM (A) service is to be performed by ITD employees assigned to operate the vehicle and/or equipment. Items needing attention will be noted in the comment section on form **ITD 0659**. When PM (A) is completed, forward the first copy (white) of the form to the District shop. The District Shop Superintendent will data enter the information into the Equipment Management System (EMS). The second copy (yellow) remains in the PM book.

**Service Intervals**

EA81 - Engine oil drain and filter replacement is to be performed for all ITD units equipped with gasoline and diesel engines at the following specified intervals:

- Gasoline Engines: Every 3,000 miles or 100 hours of operation.
  - Small Horsepower Engines: Manufacturer's recommendation found in the operator's/owner's manual not to exceed 50 hours of operation.
- Diesel Engines:
  - Stationary Application: Manufacturer's recommendation found in the operator's/owner's manual or 100 hours of operation, whichever occurs first.
  - Light-Duty Truck (up to 15,000 GVW): Manufacturer's recommendation found in the operator's/owner's manual or 6,000 miles/100 hours of operation, whichever occurs first.
  - Medium and Heavy-Duty Truck: Every 6,000 miles/100 hours of operation.
  - All Other Diesel-Powered Equipment: Every 100 hours of operation.
  - Buyback Equipment (Non-ITD): Manufacturer's recommendation found in the operator's/owner's manual or 250 hours of operation.

EB81 - Automatic transmission oil drain and filter replacement is to be performed for all ITD units equipped with gasoline and diesel engines at the following specified intervals:

- Gasoline Engine: At the unit's first 24,000 miles/500 hours of operation.
- Diesel Engine:
  - Vehicle/Truck: At the manufacturer's recommendation found in the operator's/owner's manual.
  - Earth Moving/Construction Equipment (including hydrostatic and power-shift design, etc.): Manufacturer's recommendation found in the operator's/owner's manual.

EC81, ED81 - All other fluid compartment oil drains are to be performed for all ITD units:

- ◆ Hydrostatic drives, differentials, manual transmissions, hydraulic systems, gear boxes, etc., at the manufacturer's recommended service interval found in the operator's/ owner's manual.
- ◆ When a visual inspection indicates a problem.
- ◆ When oil sample analysis report indicates a failed sample.
- ◆ At the request of the Equipment Superintendent, Equipment Analyst, Shop Superintendent, or Chemical Lab.

### **Sampling Intervals**

*\*Note: Random oil sampling for all compartments may be requested by the Equipment Superintendent on specified equipment for possible interval extension or oil evaluation purposes.*

Engine oil sampling is to be performed for all ITD units equipped with gasoline and diesel engines at the specified intervals to determine wear characteristics:

- Gasoline Engine: At the first 12,000 and 24,000 miles of operation.
  - Small Horsepower Engines: At the first 25 hours of operation.
- Diesel Engines:
  - Stationary Application: Every 200 hours of operation.
  - Light-Duty Truck (up to 15,000 GVW): Every 6,000 miles/ 100 hours of operation.
  - Medium and Heavy-Duty Truck: Every 6,000 miles/100 hours of operation.
  - All Other Diesel-Powered Equipment: Every 100 hours of operation.

- Buyback Equipment (Non-ITD): Manufacturer's recommendation found in the operator's/owner's manual or 250 hours of operation.

Automatic transmission oil sampling is to be performed for all ITD units at specified intervals to determine wear characteristics:

- Units designated 1 ton or over and equipped with:
  - Mileage Odometer: At the first 12,000 and 24,000 miles of operation.
  - Hour Meter: At the first 250 and 500 hours of operation.
- After the first specified hours of operation, reduce the sampling interval to once a year.

All other fluid compartment oil sampling is to be performed for all ITD units at specified intervals to determine wear characteristics:

- Units equipped with hydrostatic drives, differentials, manual transmissions, hydraulic systems, gear boxes, etc., and equipped with:
  - Mileage Odometer: At the first 12,000 and 24,000 miles of operation.
  - Hour Meter: At the first 250 and 500 hours of operation.
- After the first specified hours of operation, reduce the sampling interval to once a year.
- At the request of the Equipment Superintendent, Equipment Analyst, Shop Superintendent, or Chemical Lab.

**Guidelines for submitting oil samples are:**

- ITD-owned equipment:
  - Submit oil samples to the Central Chemical Lab in Boise.
  - Samples can be sent via the U.S. Postal Service using the pre-addressed, self-adhesive mailing label included in the sample kit.
  - The oil analysis sample form **ITD-945** included in the sample kit must be completed and a copy returned with the sample.
- Buyback equipment:
  - Oil samples taken on buyback equipment are to be submitted to the vendor.
  - Any required documentation included in the sample kit must be completed and returned with the oil sample.

Refer to Fig 700-11

**760.3.3.2 Chassis Lube EA82 (PM Type B)**

Inspect and lubricate wear points as specified in the owner's manual and the preventive maintenance lube sheet for the type of unit involved. Inspect and service special equipment and hydraulic systems as necessary including a safety inspection of wear items, leaks and abnormalities.

This PM (B) service is to be performed by ITD employees assigned to operate the vehicle and/or equipment. Items needing attention will be noted in the comment section on form **ITD 0659**.

Forward the first copy (white) of form ITD 0659 to the District shop as outlined in PM (A).

**760.3.3.3 90-Day Service EA83 (PM Type C)**

The nonscheduled equipment inspection is performed every 90 days without specified scheduling. Form **ITD-1741-A** is used as a checklist for PM compliance and equipment condition report.

This PM (C) service is to be performed by ITD employees assigned to operate the vehicle and/or equipment. Inspect and perform activities listed on form ITD-1741-A. Note all items needing attention.

A completed **ITD-0659** form shall accompany the completed ITD-1741-A form when reporting this activity. Forward the first copy (white) of form ITD 0659 along with the form ITD-1741-A to the District shop as outlined in PM (A).

Refer to Figure 700-12.

**760.3.3.4 Annual Inspection EA84 (PM Type D)**


The scheduled equipment inspection is performed on a scheduled basis of every twelve months. The maximum amount of time allowed to pass between inspections shall be twenty-four months or 9,000 hours/18,000 miles, whichever occurs first. Form **ITD-1741** is used as a checklist for items to be inspected and deficiencies corrected.

This annual inspection is to be performed by trained shop personnel and the time spent is to be recorded on a shop job order. Inspect special maintenance items and service emission control devices as specified by the manufacturer's recommendations. Items needing attention will be scheduled for correction.

Check for PM (A) EA81 and PM (B) EA82 scheduled service and sampling intervals and perform if required. The completed ITD-1741 form shall be attached to the job order when reporting this activity for the District Shop Superintendent to keep in his file.

Refer to Figure 700-13.

Fig 700-11

ITD-945 8-94 W		<b>PREVENTIVE MAINTENANCE OIL ANALYSIS SAMPLE</b>		
VEHICLE INFORMATION:		DISTRICT NO.: _____		
		EQUIPMENT NO.: _____		
<input type="checkbox"/> DIESEL	MAKE _____	OIL BRAND & WT.: _____		
	MODEL _____	DATE SAMPLED: _____		
<input type="checkbox"/> GASOLINE	YEAR _____	SAMPLED BY: _____		
		SHOP LOCATION: _____		
		MAINTENANCE FOREMAN: _____		

<b>PLEASE CHECK COMPARTMENT SAMPLED</b>			<b>OPERATING DATA</b>
<input type="checkbox"/> MAIN ENGINE	<input type="checkbox"/> RIGHT TANDEM	(GRADERS, etc.)	
<input type="checkbox"/> SEC. ENGINE	<input type="checkbox"/> LEFT TANDEM	<input type="checkbox"/> LEFT FRONT HUB	
<input type="checkbox"/> REAR DIFF.	<input type="checkbox"/> HYDRAULIC	<input type="checkbox"/> RIGHT FRONT HUB	
<input type="checkbox"/> FRONT DIFF.	<input type="checkbox"/> TRANSFER CASE	<input type="checkbox"/> LEFT INNER F.D.	
<input type="checkbox"/> MAIN TRANS.	<input type="checkbox"/> TORQUE CONVERTER	<input type="checkbox"/> LEFT OUTER F.D.	
<input type="checkbox"/> SEC. TRANS. (AUX)	<input type="checkbox"/> FINAL DRIVE	<input type="checkbox"/> RIGHT INNER F.D.	
<input type="checkbox"/> BACK TANDEM	<input type="checkbox"/> GEAR BOX	<input type="checkbox"/> RIGHT OUTER F.D.	
<input type="checkbox"/> FRONT TANDEM	<input type="checkbox"/> AIR COMPRESSOR	<input type="checkbox"/> OTHER _____	

WAS OIL DRAINED? <input type="checkbox"/> YES or <input type="checkbox"/> NO		TOTAL MILES/HOURS .....	
		MI/HRS AT LAST OIL CHG. ....	
		MI/HRS SINCE LAST CHG. ....	
		OIL ADDED .....	_____ QTS.

**OIL MUST BE WARM AND WELL MIXED BEFORE SAMPLING**

COMMENTS OR REPAIR SINCE LAST SAMPLE \_\_\_\_\_

\*\*\*\*\*

White copy: send with sample      DATE RECEIVED \_\_\_\_\_ LAB. NO. \_\_\_\_\_

Yellow copy: keep for your records      JOB ORDER NO. \_\_\_\_\_

### **760.3.3.5 Equipment Antifreeze Replacement**

On or before September 15, the antifreeze solution shall be checked for required freeze protection in all water-cooled vehicles and/or equipment. This annual antifreeze inspection is to be performed by trained shop personnel and the time spent is to be charged to Preventative Maintenance activity EA80 on the employee's time sheet.

Additional test requirements include the use of litmus test strips to test the acid content of the antifreeze solution. If the antifreeze is not acidic, it may be used until the next schedule antifreeze check. If the antifreeze is acidic, then the complete cooling system must be drained, flushed, and refilled with a new antifreeze solution mixture of required strength.

If the antifreeze solution has become diluted and does not pass the freezing requirement (but it does pass the litmus strip test), drain a portion of the radiator antifreeze solution and add enough straight antifreeze concentrate to obtain the required freeze protection.

Attach dated radiator tags or write with a marker to provide a record of antifreeze age and strength.

### **760.3.3.6 Air Filter Inspection**

Proper air filter inspection is essential to the life of an engine. Replacing the air filter too soon instead of when scheduled becomes expensive and can be just as detrimental to the engine as not replacing it enough or not at all. The more times the air intake system is open for inspection, the more chances there are for dirt to enter the engine. Air filter inspection should be conducted according to the manufacturer's recommendation found in the operator's/owner's manual.

- Do not tap or blow into the air filter when checking for dirt. Chances are the air intake system is still open and dirt may enter into the engine.
- Never clean and reuse an air filter. The cost of a new air filter is cheaper than the replacement cost of an engine.
- Before installing a new air filter, always check to make sure the new replacement filter has the same physical dimensions (exact match) as the old filter.
- All diesel engine trucks and off-road earth moving equipment are equipped with an "Air Cleaner Service Indicator."
  - This device allows the operator to monitor and check the condition of the air filter without opening the air intake system.
  - Please review the operator's/owner's manual for the proper use of the Air Cleaner Service Indicator in checking filter condition and testing the operation of the Air Cleaner Service Indicator.

**760.3.3.7 Deficiencies**

Report all vehicle and/or equipment deficiencies to an immediate supervisor. Document all deficiencies by completing the comment section on form ITD 0659

Major deficiencies are those items that constitute a hazard to the operator or traveling public or that could result in further damage to the equipment if allowed to operate in that condition.

If you discover what you believe is a major deficiency, get clearance from your supervisor before further operation of the vehicle and/or equipment.

Minor deficiencies are those items that are not serious enough to create safety hazards to the extent of grounding the vehicle.

**760.3.3.8 Unassigned District 61 Equipment (Traveling Equipment)**

An equipment inspection is to be performed on District 61 equipment that is not district assigned and is shared throughout the state. Inspections will be performed when that District 61 equipment enters the district and again when it leaves. Form ITD-2758 is used as a check list for items to be inspected and deficiencies corrected. A copy of this check list is to be sent to the Equipment Superintendent upon completion. Items needing attention will be scheduled for correction by the District Shop Superintendent.

Preventative Maintenance PM (A) EA81 and PM (B) EA82 activities are to be included and performed by all ITD employees assigned to operate the vehicle and/or equipment.

Refer to Figure 700-14.

**760.3.4 Preventive Maintenance Reporting**

This section outlines preventive maintenance reporting procedures.

**760.3.4.1 Equipment Specification Card ITD-685**

The information listed on page 1 of the **ITD 0778** booklet (To Be Completed by Shop Supervisor) is data required for field preventive maintenance, i.e., model numbers, capacities, sizes, filters, etc., of equipment components. When new vehicles and/or equipment arrive in your district, complete this information section of the booklet and keep the booklet with the unit at all times. When the booklet needs to be replaced, transfer this information to the new booklet.

Refer to Figure 700-9 in Section 760.3.

Figure 700-12



ITD-1741-A 3-90 27-103601-4	<h2 style="margin: 0;">NON - SCHEDULED EQUIPMENT INSPECTION</h2> <p style="margin: 0;">SEE MAINTENANCE MANUAL 05-110.4</p>																													
DATE _____ EQUIPMENT NO. _____																														
INSPECTOR _____																														
<b>TO ASSURE PROPER INSPECTION FOLLOW SEQUENCE AS INDICATED BY NUMBER</b>																														
<b>1.</b> ITD-778 "EQUIPMENT SERVICE RECORD" IS PROPERLY USED <span style="float: right;">YES <input type="checkbox"/> NO <input type="checkbox"/></span>																														
<b>2.</b> PRESENT HOURS OR MILES _____ HOURS OR MILES AT LAST SERVICE _____																														
<b>3. BODY APPEARANCE:</b> <span style="float: right;">IF POOR, PLEASE EXPLAIN</span>																														
OUTSIDE	GOOD <input type="checkbox"/> FAIR <input type="checkbox"/> POOR <input type="checkbox"/>																													
INSIDE	GOOD <input type="checkbox"/> FAIR <input type="checkbox"/> POOR <input type="checkbox"/>																													
<b>4. CHECK:</b> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 10%; text-align: center;">OK</th> <th style="width: 10%; text-align: center;">NEEDS ATTN.</th> <th style="width: 40%; text-align: center;">REMARKS</th> </tr> </thead> <tbody> <tr> <td>A. OIL</td> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black;"></td> </tr> <tr> <td>B. ANTI-FREEZE LEVEL</td> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black;"></td> </tr> <tr> <td>C. ACCESSORY BELTS</td> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black;"></td> </tr> <tr> <td>D. BATTERY APPEARANCE</td> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black;"></td> </tr> <tr> <td>E. AIR FILTER</td> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black;"></td> </tr> <tr> <td>F. TIRE INFLATION</td> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black;"></td> </tr> </tbody> </table>				OK	NEEDS ATTN.	REMARKS	A. OIL				B. ANTI-FREEZE LEVEL				C. ACCESSORY BELTS				D. BATTERY APPEARANCE				E. AIR FILTER				F. TIRE INFLATION			
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G. REAR VIEW MIRRORS																														
<b>COMMENTS:</b> _____ _____ _____ _____																														

Figure 700-13

ITD-1741 1-91  
27-103600-6

## SCHEDULED EQUIPMENT INSPECTION

SERVICE - E984 - DISTRICT SHOP



DATE \_\_\_\_\_ EQUIPMENT NO. \_\_\_\_\_ MILEAGE / HOURS \_\_\_\_\_

ENGINE : ☐ GASOLINE ☐ DIESEL      JOB ORDER NO. \_\_\_\_\_ INSPECTOR \_\_\_\_\_

STEAM CLEAN ☐ ENGINE ☐ UNDERCARRIAGE

CYLINDER BALANCE - CHECK (✓) THOSE NEEDING ATTENTION

1	2	3	4	5	6	7	8

### ENGINE TUNE UP

	OK	REPAIR	COMMENTS
DISTRIBUTOR	<input type="checkbox"/>	<input type="checkbox"/>	
SPARK PLUGS	<input type="checkbox"/>	<input type="checkbox"/>	
SPARK PLUG WIRES	<input type="checkbox"/>	<input type="checkbox"/>	
BATTERY	<input type="checkbox"/>	<input type="checkbox"/>	
ALTERNATOR	<input type="checkbox"/>	<input type="checkbox"/>	
STARTER	<input type="checkbox"/>	<input type="checkbox"/>	
CARBURETOR	<input type="checkbox"/>	<input type="checkbox"/>	
INJECTION SYSTEM	<input type="checkbox"/>	<input type="checkbox"/>	
FUEL PUMP	<input type="checkbox"/>	<input type="checkbox"/>	
EMISSION PIPING	<input type="checkbox"/>	<input type="checkbox"/>	
EMISSION FILTERS	<input type="checkbox"/>	<input type="checkbox"/>	
FUEL CAP	<input type="checkbox"/>	<input type="checkbox"/>	
FUEL FILTERS	<input type="checkbox"/>	<input type="checkbox"/>	
AIR CLEANER	<input type="checkbox"/>	<input type="checkbox"/>	
<b>EXHAUST SYSTEM</b>			
TURBO CHARGER	<input type="checkbox"/>	<input type="checkbox"/>	
MANIFOLDS	<input type="checkbox"/>	<input type="checkbox"/>	
EXHAUST PIPE	<input type="checkbox"/>	<input type="checkbox"/>	
CAT. CONVERTER	<input type="checkbox"/>	<input type="checkbox"/>	
MUFFLER	<input type="checkbox"/>	<input type="checkbox"/>	
TAILPIPE	<input type="checkbox"/>	<input type="checkbox"/>	
EXHAUST HANGERS	<input type="checkbox"/>	<input type="checkbox"/>	
<b>POWER TRAIN</b>			
ENGINE	<input type="checkbox"/>	<input type="checkbox"/>	
CLUTCH	<input type="checkbox"/>	<input type="checkbox"/>	
TRANSMISSION	<input type="checkbox"/>	<input type="checkbox"/>	
FRONT AXLE	<input type="checkbox"/>	<input type="checkbox"/>	
DRIVE LINE FRT.	<input type="checkbox"/>	<input type="checkbox"/>	
MAIN DRIVE LINE	<input type="checkbox"/>	<input type="checkbox"/>	
FR. DIFF. TAND.	<input type="checkbox"/>	<input type="checkbox"/>	
DRIVELINE TAND.	<input type="checkbox"/>	<input type="checkbox"/>	
REAR DIFF. TAND.	<input type="checkbox"/>	<input type="checkbox"/>	
AIR COMPRESSOR	<input type="checkbox"/>	<input type="checkbox"/>	
<b>COOLING SYSTEM</b>			
WATER PUMP	<input type="checkbox"/>	<input type="checkbox"/>	
RADIATOR	<input type="checkbox"/>	<input type="checkbox"/>	
HOSES	<input type="checkbox"/>	<input type="checkbox"/>	
HEATER HOSES	<input type="checkbox"/>	<input type="checkbox"/>	
ANTI - FREEZE	<input type="checkbox"/>	<input type="checkbox"/>	
THERMOSTAT	<input type="checkbox"/>	<input type="checkbox"/>	
AIR CONDITIONING	<input type="checkbox"/>	<input type="checkbox"/>	
BLOCK HEATER	<input type="checkbox"/>	<input type="checkbox"/>	

### UNDER CARRIAGE

	OK	REPAIR	COMMENTS
PWR. STEER PUMP	<input type="checkbox"/>	<input type="checkbox"/>	
STEERING GEAR	<input type="checkbox"/>	<input type="checkbox"/>	
SHOCK ABSORBERS	<input type="checkbox"/>	<input type="checkbox"/>	
KING PINS	<input type="checkbox"/>	<input type="checkbox"/>	
BALL JOINTS	<input type="checkbox"/>	<input type="checkbox"/>	
DRAG LINK	<input type="checkbox"/>	<input type="checkbox"/>	
TIE RODS	<input type="checkbox"/>	<input type="checkbox"/>	
IDLER ARM	<input type="checkbox"/>	<input type="checkbox"/>	
BRAKES	<input type="checkbox"/>	<input type="checkbox"/>	
EMERGENCY BRAKE	<input type="checkbox"/>	<input type="checkbox"/>	
BRAKE DRUMS	<input type="checkbox"/>	<input type="checkbox"/>	
BRAKE CANS / CYLS.	<input type="checkbox"/>	<input type="checkbox"/>	
WHEELS & LUG BOLTS	<input type="checkbox"/>	<input type="checkbox"/>	
WHEEL BEARINGS	<input type="checkbox"/>	<input type="checkbox"/>	
WALKING BEAM BUSHINGS	<input type="checkbox"/>	<input type="checkbox"/>	
SPRINGS	<input type="checkbox"/>	<input type="checkbox"/>	
WHEEL ALIGNMENT	<input type="checkbox"/>	<input type="checkbox"/>	
<b>TIRES</b>			
RECORD TIRE	FRONT AXLE    2ND AXLE    3RD AXLE		
TREAD DEPTH	/ 32	/ 32	/ 32
MEASUREMENTS	/ 32	/ 32	/ 32
<b>HYDRAULIC SYSTEM</b>			
PUMP	<input type="checkbox"/>	<input type="checkbox"/>	
P.T.O. DRIVE	<input type="checkbox"/>	<input type="checkbox"/>	
HOSES	<input type="checkbox"/>	<input type="checkbox"/>	
VALVES	<input type="checkbox"/>	<input type="checkbox"/>	
CONTROLS	<input type="checkbox"/>	<input type="checkbox"/>	
CYLINDERS	<input type="checkbox"/>	<input type="checkbox"/>	
FILTER	<input type="checkbox"/>	<input type="checkbox"/>	
<b>SAFETY EQUIPMENT</b>			
WINDSHIELD	<input type="checkbox"/>	<input type="checkbox"/>	
DOOR GLASS	<input type="checkbox"/>	<input type="checkbox"/>	
REAR WINDOW	<input type="checkbox"/>	<input type="checkbox"/>	
REARVIEW MIRROR	<input type="checkbox"/>	<input type="checkbox"/>	
WINDSHIELD WIPERS	<input type="checkbox"/>	<input type="checkbox"/>	
HEADLIGHTS	<input type="checkbox"/>	<input type="checkbox"/>	
TAILLIGHTS	<input type="checkbox"/>	<input type="checkbox"/>	
STROBE LIGHT	<input type="checkbox"/>	<input type="checkbox"/>	
HORN	<input type="checkbox"/>	<input type="checkbox"/>	
GAUGES	<input type="checkbox"/>	<input type="checkbox"/>	
SPEEDOMETER	<input type="checkbox"/>	<input type="checkbox"/>	
REFLECTOR KIT	<input type="checkbox"/>	<input type="checkbox"/>	
SEAT BELTS / SEATS	<input type="checkbox"/>	<input type="checkbox"/>	
BACK ALARM	<input type="checkbox"/>	<input type="checkbox"/>	
FIRST AID KIT	<input type="checkbox"/>	<input type="checkbox"/>	
FIRE EXTINGUISHER	<input type="checkbox"/>	<input type="checkbox"/>	

COMMENTS:

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COMMENTS CONTINUED ON REVERSE SIDE ☐

**760.3.4.2 Fluid Use Record (ITD 0778 Booklet)**

All ITD personnel are to perform daily checks before driving or operating any vehicle or piece of equipment. When performing daily or scheduled inspections, this record is used to record **all** fluids that were added.

In addition to recording all oils and coolant that were added to the unit, *the driver or operator is also required to enter the amount of fuel used at each refueling interval*. By recording fuel usage, the driver or operator can then verify:

- If the recorded meter/odometer reading is in correct sequence with previously entered meter/odometer readings.
- If the unit is equipped with multiple meters and if the correct meter/odometer is being used to record fuel purchases.
- If the meter/odometer has developed a problem or has quit working altogether.

**760.3.4.3 Equipment Preventive Maintenance and Service Inspection Record (ITD 0778 Booklet)**

Record pre-trip inspection information or inspection of specific items that the manufacture has scheduled. Record the information for those items that have been inspected.

**760.3.4.4 ITD 0659, Preventive Maintenance Equipment Management**

A pad of this form is required to be kept in every vehicle and/or piece of equipment unless otherwise specified by the District Shop Superintendent. Complete the form for any or all of the defined preventive maintenance activities that are performed. A copy of this form notifies a computerized scheduling program that preventive maintenance service has been completed and automatically updates the service record for each vehicle or piece of equipment.

If the vehicle or piece of equipment is outsourced for any preventive maintenance work, it is the responsibility of the individual overseeing and inspecting the work to complete and submit form ITD 0659.

Proper completion of this form is essential in determining the districts' equipment budget allocation.

Refer to Figure 700-10 in Section 760.3.

Form Distribution: First copy (white) is forwarded to District Shop for data entry into the Preventative Maintenance (PM) system; second copy (yellow) is retained in the PM book. The PM book is then kept in the vehicle and/or equipment for future reference.

**760.3.4.5 ITD-1741-A, Non-Scheduled Equipment Inspection**

Complete this form for Preventive Maintenance service PM (C) EA83, 90-Day Service. This form provides an orderly means of inspecting and servicing the vehicle components and a means of reporting the service and vehicle condition to supervisory and/or District shop personnel.

Refer to Figure 700-12 in Section 760.3.3.3.

Form Distribution: Single copy sent to the District Shop Superintendent

**760.3.4.6 ITD-1741, Scheduled Equipment Inspection**

Complete this form for preventive maintenance service PM (D) EA84, Annual Inspection. This scheduled inspection is to be conducted by trained shop personnel. The form provides an orderly means of inspecting and servicing the vehicle components. Any additional work discovered from the inspection can then be addressed by the District Shop.

Refer to Figure 700-13 in Section 760.3.3.4.

**760.3.4.7 ITD 945, Preventive Maintenance Oil Analysis Sample**


This form is used to record oil sampling information that is pertinent to the type of oil sampled and what vehicle or piece of equipment it was taken from.

Form Distribution: First copy accompanies sample to the Materials Chemical Lab; second copy retained by the individual taking the sample.

Refer to Figure 700-11 in Section 760.3.3.1.

Figure 700-14

ITD-2758  
10-92



**CONDITION REPORT FOR DISTRICT 61 EQUIPMENT  
CRAWLER TRACTORS, ASPHALT MILLING MACHINE, AND TRENCHER**

DISTRICT \_\_\_\_\_

FOREMAN ASSIGNED \_\_\_\_\_

SHOP SUPT. \_\_\_\_\_

EQUIPMENT NUMBER \_\_\_\_\_

DATE RECEIVED \_\_\_\_\_

MILES/HOUR METER \_\_\_\_\_

DATE LEAVING \_\_\_\_\_

MILES/HOUR METER \_\_\_\_\_

This report must be filled out and signed by the Shop Superintendent when transferring this equipment to another District.

DISTRIBUTION :

- ORIGINAL - Equipment Superintendent
- YELLOW - Receiving District
- PINK - Sending District

<u>DESCRIPTION</u>	<u>OK</u>	<u>COMMENT</u>
CLEAN EQUIPMENT	_____	_____
COMPLETE LUBRICATION	_____	_____
CHANGE OIL AND FILTER	_____	_____
CHECK ALL FLUID LEVELS	_____	_____
DRAIN DIESEL FUEL FILTER	_____	_____
CHECK HYDRAULIC CYL. FOR LEAKS	_____	_____
REPAIR ANY OTHER LEAKS	_____	_____
CHECK BRAKE OPERATION	_____	_____
INSTRUMENTS AND LIGHTS WORKING	_____	_____
STEERING L AND R OPERATIONAL	_____	_____
TRACK PAD BOLTS TIGHT	_____	_____
CHECK TRACKS AND UNDERCARRIAGE	_____	_____
CUTTING BITS/TEETH NEED REPLACING	_____	_____
PM BOOK WITH MACHINE	YES/NO	_____
OVERALL CONDITION WHEN RECEIVED	_____	
OVERALL CONDITION ON DEPARTURE	_____	
GENERAL COMMENTS: _____		
_____		
_____		
_____		
_____		
_____		

### 760.3.5 Preventive Maintenance Service Scheduling

This section outlines the scheduling method and procedures.

#### 760.3.5.1 Scheduling Method

Data from the various reporting forms are entered into computer systems to update the service records on each vehicle or piece of equipment. A computer program schedules some service activities at regular time intervals throughout the year. Partial service (e.g., 90-day service) is scheduled to coincide with annual service to avoid duplicate effort. Other equipment services are based on and scheduled according to the mileage or running time accumulated by the vehicle or piece of equipment.

Reports are sent to appropriate personnel showing what service has been done to each piece of equipment and what should be done in the next time interval.

Review the reports and take necessary coordinated action to ensure that preventive maintenance services are accomplished.

See [Figure 700-15](#).

#### 760.3.5.2 PM Scheduling Procedure

All operators will perform the following procedures when scheduling preventative maintenance work:

- Inspect the equipment before and after operation and ensure the equipment is in a safe, normal operating condition.
- Check the current hour meter/speedometer and date against the **ITD 0659** located in pad form in the vehicle for the hour meter/speedometer reading and date when the last service was performed. Recommended service intervals for determining if servicing is needed begin on page 4 of this booklet.
- Upon completion of scheduled preventative maintenance activities, complete an ITD 0659 preventative maintenance form and note all known or discovered deficiencies in the comment section located at the bottom of the form.
  - Please refer to section 760.3.3.7 of this manual for definition of deficiencies and how to report them.
  - Once completed, the first copy (white) of the ITD 0659 is removed from the book and is submitted to an immediate supervisor for review. The supervisor will then forward to the District Shop Superintendent for data entry into the Preventative Maintenance system.
  - The supervisor will then contact the District shop to make arrangements for all required repairs.

- If a commercial company is used to perform preventative maintenance activities, it is the responsibility of the operator to:
  - Recorded all services performed on the ITD 0659 form.
  - Note all deficiencies in the comment section of the ITD 0659 form.
  - Attached the sales receipt (or a copy) to the first copy (white) of the ITD 0659 form.
  - Submit the ITD 0659 form and sales receipt to an immediate supervisor or District Shop Superintendent for data entry into the Preventative Maintenance system.

Shop Superintendent or Field Mechanic perform the following procedures:

- Ensure that the proper forms are available in vehicles/equipment and instruct individuals in the proper use of the forms and reporting preventive maintenance services.
- Review completed preventive maintenance forms and equipment operator reports to ensure that deficiencies recorded thereon are corrected.
- Review computer reports on scheduled preventative maintenance activities. In the case of vehicles/equipment reported as overdue for scheduled preventative maintenance, contact supervisory personnel assigned to the equipment and verify that a required service is performed or schedule an appointment in accord with the last service date or mileage/hours shown on the report.
- Maintain a maintenance history file on each piece of equipment for future reference regarding repairs or servicing.

Supervisory personnel assigned the equipment perform the following procedures:

- Assure that assigned equipment is serviced in compliance with the prescribed service intervals.
- When PM services are performed by ITD personnel or commercial stations, see that the proper forms are completed and forwarded to District Shop Superintendent for data entry of the information into the Preventative Maintenance system.
- Contact the District Shop Superintendent when a scheduled inspection or repair is necessary. Schedule the work in advance, if possible.

### **760.3.6 Preventive Maintenance Responsibilities**

This section identifies headquarters and district responsibilities for preventive maintenance.

**760.3.6.1 Equipment Superintendent - Headquarters**

The Equipment Superintendent is responsible for providing an efficient, effective and track-able equipment preventive maintenance program for statewide use, and is also responsible for review of the district implementation of the program.

**760.3.6.2 Equipment Manager - District**

The District Shop Superintendent is responsible for implementing the preventive maintenance program as outlined in Sections 5-763.3 through 5-763.5.2 of the Maintenance Manual.

**760.3.7 Permanent Equipment Maintenance Record Form ITD 0778**

Equipment is purchased to assist ITD employees to do their jobs more effectively and efficiently over a long period of time. The operators of the equipment are responsible for its safe operation, preventative maintenance and records at prescribed intervals as recommended by the Equipment Superintendent and the Operator's manual.

Form **ITD 0778**, Permanent Equipment Maintenance Record, is to be located in all motorized equipment units and is to be utilized by the operator(s) for a permanent record of any preventative maintenance performed, fluids added and/or fuel used.

Figure 700-15

Equipment Operator	Personnel Responsible for Preventive Maintenance (Shop Supervisor or Field Mechanic)	Supervisory Personnel Assigned the Equipment
<ol style="list-style-type: none"><li>1. Inspect the equipment before, during and after operation and ensure the equipment is in safe, normal operating condition.</li><li>2. Complete the equipment operators report, Form ITP-659, when operator Preventive Maintenance services are completed<ol style="list-style-type: none"><li>a) If a minor deficiency is noted that does not require grounding the vehicle until it is corrected, the first copy of ITP-659 is removed from the book and routed to supervisory personnel for scheduling or repair.</li><li>b) If a major deficiency is discovered that should be corrected prior to further operation, the first copy of ITP-659 will be routed to supervisory personnel for scheduling of repairs.</li></ol></li><li>3. Check the current hour meter/speedometer and date against the ITP-659 located in pad form in the vehicle for the speedometer hour meter reading and date when the last service was performed. Recommended service intervals will be located on the cover for determination if a service is due.</li><li>4. If a commercial service is performed, make sure that the service is recorded on the PM service form and a copy sent to supervisory personnel for an update to the Preventive Maintenance Scheduling System. Important: All services performed must be recorded on the ITP-659 form and a copy sent to the supervisory personnel for an update to the Preventive Maintenance Scheduling System.</li></ol>	<ol style="list-style-type: none"><li>1. Ensure that the proper forms are available in the vehicles and appropriate facilities for reporting Preventive Maintenance services.</li><li>2. Review Preventive Maintenance services lube forms and equipment operators' report and ensure that deficiencies recorded thereon are corrected.</li><li>3. Review computer reports of services accomplished and services scheduled. In the case of delinquent vehicles, contact supervisory personnel assigned the equipment and verify that a service is performed or schedule an appointment in accord with the last service date or mileage/hours shown on the report.</li><li>4. Maintain a maintenance history file on each piece of equipment for reference in future repairs or servicing.</li></ol>	<ol style="list-style-type: none"><li>1. Assure that assigned equipment is serviced in compliance with the prescribed service intervals.</li><li>2. If services are accomplished by operating personnel or commercial stations, see that the proper forms are completed and forwarded to personnel assigned the responsibility for preventive maintenance (District Shop Superintendent or Field Mechanic).</li><li>3. Contact the appropriate shop personnel when a service or repair is necessary and schedule the work in advance, if possible.</li></ol>

## 764.0 EQUIPMENT TIRE MAINTENANCE

A regular program of inspecting tires is essential for providing the longest tire life for the lowest possible cost and in the prevention of rapid air loss resulting in subsequent tire failure.

All vehicle and/or equipment tires: Tire inspection is to be performed by ITD employees assigned to operate the vehicle and/or equipment. **As a minimum**, tires should be inspected at the time of the regular preventive maintenance checks. More frequent checks are required during cold weather periods.

The correct procedure in checking tires is to always check tire inflation pressures when tires are cold. Adjust tire pressures in compliance with the manufacturer's printed tire pressure information located on the sidewall of tire. Never bleed air from hot tires to relieve normal pressure build-up or to adjust tire pressure. **Do not** allow tires to become under inflated. Always maintain proper tire pressure by checking tire pressure at frequent intervals.

Operators are required to maintain at least 4/32" of tread groove depth on the front tires and 2/32" remaining tread depth on the other wheel positions.

**Truck tires:** The single tire cold inflation pressure should be 105 psi for 11R22.5 tires and 90 psi for dual tires. For the 315/80R22.5 tires, the cold inflation pressure should be 130 psi during winter operations and 115 psi during summer operations.

Make sure mated dual tires are at equal pressure levels. Use sealing-type valve caps. It is necessary to closely match tire revolutions per mile with tandem drive axle units coupled directly together, as when an inter axle differential does not exist or is locked out. The difference in circumference of the tires on a dual assembly should never exceed 1-1/2 inches.

When mounting duals on a truck, there will generally be some difference of the two tires (within the limits described above). Mount the small tire on the inside. The outside tire wears faster than the inside tire. When mounting the duals on a vehicle, locate the two valves diametrically opposite.

**Caution:** It is very important not to mix radials and bias ply tires on the same axle due to different load/deflection characteristics of these two types of tires.

### 764.1 Retreaded Tires on Highway Vehicles

Since it is becoming more and more difficult to dispose of used tires, the need to recycle tires is greater now than in previous years. Therefore, all on-highway tires with a 16 inch wheel diameter or larger will be submitted for retreading/recapping. Used tires with a wheel diameter of less than 16 inches and those with a wheel diameter of 16 inches and larger that are not suitable for retreading/recapping will be stored and sold at public auction.

Retreaded/recapped tires are to be utilized on drive axle and trailer axles only. Retreaded/recapped tires are not to be utilized on steering axles.

#### **764.2 Studded Snow Tires**

It is the policy of Management and the Maintenance Section that the only vehicles allowed to operate with studded tires are Incident Management service patrol trucks and rotary snowplows. All other types of equipment are not to be equipped with studded tires.

#### **765.0 EQUIPMENT MODIFICATIONS**

For any equipment modifications or design changes deemed necessary, a letter of request must be submitted to the Equipment Superintendent describing in detail the intended modifications, the equipment number, the description, and the estimated cost. No modifications shall be accomplished without the approval of the Equipment Superintendent.

Modifications, whether electrical, mechanical or a hydraulic function directly affecting the performance, operation or safety of any vehicle or unit of road equipment shall be conducted by Shop Personnel under the direction of the Shop Superintendent only. Operators/users are not to be performing equipment modifications.

#### **766.0 BROKEN METERS**

It is the responsibility of the operator to ensure that hour meters and odometers are working properly. All deficient hour meters and odometers are to be reported to the Shop Superintendent as soon as the deficiency is discovered.

Upon receiving information that a unit has a malfunctioning hour meter or odometer, the District Shop is to repair the meter within fifteen (15) working days. The Shop Superintendent is to complete form ITD-2715 Odometer Replacement and submit it to the Maintenance Section.

Refer to Figure 700-16.

#### **770.0 OPERATION AND UTILIZATION**

##### **770.1 Equipment Design Limits**


It is illegal to operate Department vehicles on public highways if weight or size exceeds the established legal limitations unless a special permit allows for greater weight. Legal allowable weight and size limits are set forth in Idaho motor vehicle laws, Title 49, Chapter 10, of the Idaho Code. Department vehicles are designed and procured to meet these requirements. Districts are responsible for controlling these limits on their assigned vehicles with the operator being responsible for overweight citations.

When Department vehicles are loaded in such a manner that the legal allowable weight and size limits as set forth in the Idaho motor vehicle laws , Title 49, Chapter 10 of the Idaho Code are exceeded, the District Equipment Manager is to contact the Special Permit Section and obtain a permit. Department vehicles are not exempt from laws governing size and weight and can be issued citations if the unit is in noncompliance.

## **770.2 Utilization Reporting Procedures**

Proper reporting of equipment utilization is the responsibility of all employees who operate Department owned vehicles and equipment. Improper reporting misrepresents the actual costs associated with maintenance and construction projects and distorts the true cost of operating the equipment fleet. All equipment utilization shall be reported on a daily basis in order to track the days of use as well as the hours or miles.

Figure 700-16

ITD-2715 9-91 27 22136 4		<b>METER REPLACEMENT EQUIPMENT MANAGEMENT</b>																	
EQUIPMENT NUMBER				<div style="border: 1px solid black; width: 100px; height: 20px; margin: 0 auto;"></div>						VEHICLE DESCRIPTION									
METER READING PRIOR TO CURRENT METER CHANGE				<div style="border: 1px solid black; width: 100px; height: 20px; margin: 0 auto;"></div>															
TOTAL USAGE - ALL CHANGES/REPAIRS				<div style="border: 1px solid black; width: 100px; height: 20px; margin: 0 auto;"></div>						ORG. CODE		LOCATION							
PREVIOUS CHANGES/BREAKDOWNS, IF KNOWN:																			
DATE OF THE CHANGE/REPAIR			LAST NAME	MECHANIC MAKING THE METER CHANGE/REPAIR OR PERSON SUBMITTING THE INFORMATION										NEW ODOMETER READING				ODOMETER CHANGE	
MO. DAY YR.			INIT ONLY	SOCIAL SECURITY NUMBER														<input type="checkbox"/> 1ST CHANGE <input type="checkbox"/> 2ND CHANGE <input type="checkbox"/> 3RD CHANGE <input type="checkbox"/> REPAIR	
COMMENTS																			
DATE SUBMITTED: _____ SIGNATURE AND TITLE: _____																			

For vehicles that are to be reported in miles of usage, utilize the vehicle's odometer to determine the total amount of utilization to report. A periodic check of Equipment Management System should verify that the odometer reading coincides with the number of miles reported as utilization.

The proper method of reporting vehicles and equipment by hour is to report the number of hours that the unit was at the project site and unavailable for another project. Reporting of hourly equipment is not to be based on the hour meter. If a piece of equipment is at a particular job site for 8 hours but only receives 2 hours of actual use, then 8 hours is to be charged for that equipment.

When reporting utilization for loaders stationed at stockpiles, the total hours of utilization reported shall be equal to the storm duration or the employee shift length.

When reporting equipment utilization, take the necessary precautions that a single unit of equipment is not charged by more than one individual.

### **770.2.1 Documentation**

Equipment utilization is reported to the various computerized management systems through the use of the ITD-657 Employee Timesheet and Activity Report form and the ITD-9 Unassigned Motor Pool Equipment Rental Charges form.

#### **770.2.1.1 ITD-657 Employee Timesheet and Activity Report**

Vehicles and equipment that are assigned to an individual, section, or maintenance area are to have usage reported on the ITD-657. Utilization is to be reported for each unit of equipment utilized for each individual project or road section.

#### **770.2.1.2 ITD-9 Unassigned Motor Pool Equipment Rental Charges**

Headquarters and each district maintain a motor pool of automobiles and other general use equipment for Department business. Reporting of usage of these vehicles is accomplished through the use of the ITD-9 form.

All out-of-town trips are to be recorded on the form by the person utilizing the vehicle or equipment. Miles/hours of use on the vehicle are chargeable to a specific project, training class or to the organization of the operator of the vehicle or equipment.

Short trips to a local business establishment or meetings for Department business are charged to motor pool operations at the end of the reporting period as a single line entry on the ITD-9.

Refer to Figure 700-17.

**770.3 Personal Auto Use**

Refer to Director's Memorandum No. 11.

**770.4 Vehicle Speed Limits**

Employees operating state owned vehicles are to obey all traffic laws including the posted speed limit. Traffic laws are also be observed when using personal vehicles on department business.

Although Idaho law restricts trucks with 5 or more axles to a maximum speed of 65 MPH, the general public believes that all trucks are restricted to this speed. In order to promote a positive perception by the public, minimize fuel consumption and tire wear, and increase safety, all ITD trucks will be restricted to a maximum speed of 65 MPH. Trucks with computer controls will have the manual full throttle control set at a maximum of 68 MPH while the maximum cruise control setting will be set at 65 MPH.

**770.5 Utilization Review**

At the conclusion of each calendar year, the Equipment Superintendent will provide each district with a report detailing the amount of utilization for each unit of equipment. The District Engineer or designee shall review the report to ensure that all equipment is being utilized to stated department standards. See Figure 700-5. For those units of equipment that were utilized below department standards, written justification shall be provided to the Equipment Superintendent for retaining the unit within ITD's equipment fleet. Justification shall include a description of the vehicle's intended use and estimated annual mileage.

Figure 700-17

ITD-9 8-99 W  
27-0064009

Beginning Date DD MON YY

Ending Date DD MON YY

Org. Rptg.

**UNASSIGNED MOTOR POOL EQUIPMENT RENTAL CHARGES**

**Operator:** Use one line for each trip.  
Complete all appropriate columns on each line.


Assigned EQ Org.

Beginning Mileage                     

Ending Mileage                     

Difference                     

EQ No.



	Print Last Name & First Initial/ITD Driver Permit #	Check-Out Date DDMMYY	Check-In Date DDMMYY	Project # (Work Auth.) (7)	Rule Cd. (1)	Task # (FCT, ACT) (6)	Miles or Hours	Beg./End Odom. Reading (7)	Ref Code (2)	Reference # (7)	Beg. (Spot)/End Milepost
1											
2											
3											
4											
5											
6											
7											
8											
<b>TOTAL</b>											

Prepared By:                     

Date                     

PAGE                      OF

DOCUMENT NO.

EQUIP. CLASS

**780.0 EQUIPMENT DISPOSAL****780.1 Surplus Equipment**

Road equipment that is determined surplus to the Department should be submitted (use Form ITD-230A, Surplus Property Disposal Request) to the Equipment Superintendent for approval by May 30<sup>th</sup> each calendar year. Equipment identified for disposal shall meet the replacement criteria described in Section 740.1.1.

Once approved by the Equipment Superintendent, the ITD-230A will be forwarded to the Supply Services Section. The district submitting the request form is responsible for completing the form with one exception (current estimated value), the last column on the extreme right.\* The estimated value is computed by the Equipment Superintendent using information entered in the condition code column, past sale history of like equipment, and used equipment value guidelines.

\*Description column needs to briefly describe equipment as follows:

4-door sedan, 13,000 kg (1/2-ton) pickup, dump truck, flatbed truck, etc.

The condition codes with brief condition description are as follows:

E – Excellent

G – Good (normal operation with no apparent repairs needed)

F – Fair (operating condition but repairs may be required)

R – Repairs required for normal operation

U – Unusable scrap (sell as scrap or scrap for parts)

Refer to Figure 700-18.

**780.2 Equipment Cannibalization**

When determining equipment that would have more value to the Department by cannibalization, it must be submitted on form ITD-230A to the Procurement and Material Management Section. Approval must be obtained from the State Board of Examiners before dismantling. After receiving approval, the equipment and Vehicle Identification numbers must be removed and the unit is ready for cannibalization. After removing the usable parts, the remainder of the unit can be sold at the next upcoming sale as scrap iron. For more information, refer to the Procurement and Material Manual, Section 29-604.2.

For more information, refer to the Procurement and Material Manual, Section 29-604.2.

Figure 700-18

[illegible]

**790.0 EQUIPMENT COST ACCOUNTING****790.1 Rental Rate Procedure**

Equipment rental rates are used in the Department for cost allocation of equipment to various construction and maintenance projects. Each hour/mile of use is multiplied by the assigned rate and then charged to the corresponding project or road section.

The equipment rental rates are reviewed on an annual basis to coincide with the Federal Fiscal Year by the Financial Services Section of the Department. Rental rates are calculated for each Class of equipment and include all costs associated with the equipment. Before new rates are implemented, they are each reviewed by the Federal Highway Administration (FHWA) to ensure that all costs included are eligible for participation by the FHWA.

**790.1.1 Attached Equipment**

Attached equipment is equipment that cannot function in a direct manner without the assistance of another piece of equipment. This includes sanders and snow plows and all other equipment with a Class designation of Z1. Employees are not required to report utilization of attached equipment. Therefore, a rental rate for attached equipment cannot be calculated. All costs associated with attached equipment is distributed to the various primary power units of the attached equipment.

**790.1.2 Primary Power Unit**

The primary power units are equipment with a class designation of AA through ZZ. Rental rates for these classes of equipment include all direct costs of the equipment such as job orders, parts, fuel, and preventive maintenance. Indirect costs and annual depreciation are also included. As stated above, attached equipment costs are allocated to the various classes that are primary power units for the attached equipment such as dump trucks, mower tractors, and tractor trucks.

When all costs are summed to determine the total expenses for the class of equipment, then the total is divided by the previous years utilization for the class to determine the new rental rate.

**790.2 Renting Supplemental Equipment**

If additional equipment is needed for emergencies or other work, the District Engineer may rent such equipment within the limitations of his budget. Rental charges shall not exceed the maximum shown in the "Equipment Guide Book Company, Rental Rate Blue Book" without approval of the Maintenance Engineer. Refer to the Standard Specifications for Highway Construction handbook for application of the "Rental Rate Blue Book" rental rates.

**790.2.1 Estimated Equipment Rental Cost Less Than \$25,000/Project (Refer Administrative Policy A-06-42)**

Oral bids shall only be used for equipment rental that is estimated to be less than \$25,000 per project. Oral bids shall be documented through the use of Form ITD-552, Request for Quotation. The original of this form shall go to Financial Control, the first copy shall go to the Maintenance Engineer, and the second copy shall be kept on file by the district or section soliciting the bid.

An Idaho Transportation Department Rental Agreement (ITD-1232) form is required when renting supplemental equipment. An ITD-assigned rental equipment number must be obtained from the Equipment Superintendent (or his representative) when renting any equipment that falls under the equipment categories listed in Figure 700-5 in Section 744.0. Equipment operation costs (fuel, oil, repairs, etc., from ITD sources) will be charged to the assigned rental equipment number on the standard ITD forms. Rental equipment usage should be shown under the equipment column on the Employee Time Sheet by the person responsible for the rented equipment. Refer to Figure 700-19.

**790.2.2 Estimated Equipment Rental Cost More Than \$25,000/Project (Refer Administrative Policy A-06-42)**

Any required equipment rental that is estimated to be in excess of \$25,000 per project shall be advertised through Contract Administration or the Procurement and Material Management section in accordance with standard contract bid procedures. Formal competitive bidding procedures may be waived in favor of oral bidding procedures in the event of emergency conditions upon approval of the State Highway Administrator.

**795.0 EQUIPMENT ATTACHMENTS****795.1 Vehicle Warning Lights**

All department maintenance vehicles working within the right-of-way shall be equipped with at least one amber strobe or dual rotating halogen light. This light must be visible from a distance of not less than 1,000 feet in normal sunlight and not less than 2,500 feet under normal atmospheric conditions at night.

In addition to the amber light(s), 2 and 3-axle dump trucks are to be equipped with conspicuity stripes. These stripes shall be placed along the lower side rub rail of the dump body and shall outline the tailgate of the unit.

Tail lamps, stop lamps, and clearance lamps on all vehicles, including snow removal equipment, must meet standards specified in applicable sections of the Idaho Code.

Any modifications to this policy or special operating conditions that require other lighting must be approved by the Equipment Superintendent. Refer to Fig 700-20.

**795.1.1 ITD Sander Truck Warning Light Mounting**

Snowplow vehicles equipped with truck-mounted sander bodies will have additional alternating amber flashing lights mounted on the rear of the sander body. These flashing lights will be operated from a separate switch.

Trucks equipped with sander bodies may have a lamp that will illuminate the spinner assembly and the rear of the sander. The direct beam of the light from this lamp must not be visible to following vehicles.

Sander body equipped trucks will also be equipped with conspicuity stripes along the upper side rail and across the back of the sander body.

Refer to Figure 700-21.


**795.1.2 Port of Entry Vehicles**

Port of entry vehicles shall be equipped with light bars utilizing rotating halogen lights and red lenses. These light bars must also have an amber rotating light or a strobe light to warn motorists when the vehicle is working within the right-of-way. This amber light shall be visible from a distance of not less than 1,000 feet in normal sunlight and not less than 2,500 feet under normal atmospheric conditions at night.

**795.1.3 Warning Lights for Vehicles Equipped With Attenuators**

Vehicles equipped with an energy absorption attenuator will be mounted with amber lights visible from both directions of travel of the vehicle and with a flashing arrow board. The arrow board will have multiflash capability (i.e., flash left, flash right, and non-directional flash) and be appropriately sized for the vehicle and job requirements.

Figure 700-19

ITD-1232 12-87 27-075800-6	IDAHO TRANSPORTATION DEPARTMENT RENTAL AGREEMENT	
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THIS AGREEMENT, Made and entered into, in quadruplicate, this \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_, between the Idaho Transportation Department, party of the the first part, hereinafter referred to as the "State," and \_\_\_\_\_, a (corporation, partnership or individual), party of the second part, hereinafter referred to as "Renter," whose business and post office address is:

WITNESSETH: Whereas, the State requires the use of certain equipment and machinery on a rental basis for emergency and piece work; and

Whereas, the Renter of the following described equipment owns and will furnish to the State on a rental basis said machinery and equipment, the parties hereto agree as follows:

(1) That the Renter agrees to rent to the State and the State agrees to pay the Renter, for the use of the following items of equipment or machinery, with or without operators, for the periods and at the rate per unit, subject to added stipulations in (7), as follows:

Equipment Description Make and Type	Capacity and/or Mfrs. Rating	Serial No.	Rental Rate With or Without Operator	ITD Assigned Rental Equip. No.
1. _____				T _ _ _ _
2. _____				T _ _ _ _
3. _____				T _ _ _ _
4. _____				T _ _ _ _
5. _____				T _ _ _ _
6. _____				T _ _ _ _

(2) Renter agrees to defend and indemnify the State from liability for claims resulting from defective equipment or renter operator negligence under this agreement and will carry public liability and damage insurance on all equipment or machinery in an amount not less than \$500,000 per occurrence;

(3) The State is/is not to furnish any fuel or repairs for the operation or maintenance in connection with the operation of rental equipment mentioned in this contract;

(4) This contract shall become effective and the work to be performed under it to start not later than the \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_, and to be completed not later than the \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_.

(5) The District Engineer or Section head, where the work is located, shall be in charge of and supervise the work and direct the operation of the rental equipment at all times. He shall make and keep a daily written report of the number of hours that each unit of equipment was in operation and chargeable to the job under this contract and shall furnish the Renter a copy of such report each day that this contract is in effect until the job is completed, signed by him or his agent designated to make such report, and such report shall be made a part of the permanent work record of the job under this contract. Time for which rent is paid on any particular piece of equipment shall be that during operation on the job only and shall not include time taken out for oiling and repairing.

(6) Acceptance of this contract binds the Renter to the terms and conditions of Section 601, Title VI, Civil Rights Act of 1964: In that, "No person in the United States shall, on the grounds of race, color, national origin, sex, or age, be excluded from participation in, be denied the benefits of, or be subject to discrimination under any program or activity receiving Federal financial assistance." In addition, "No otherwise qualified handicapped individual in the United States shall, solely by reason of his handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance."

(7) STIPULATIONS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Any machinery or equipment or operators employed under this contract shall be used, employed on and charged to Project \_\_\_\_\_, in \_\_\_\_\_ County.

IN WITNESS WHEREOF, The parties hereto have set their hands and seal this \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_.

ATTEST: \_\_\_\_\_ IDAHO TRANSPORTATION DEPARTMENT

By \_\_\_\_\_

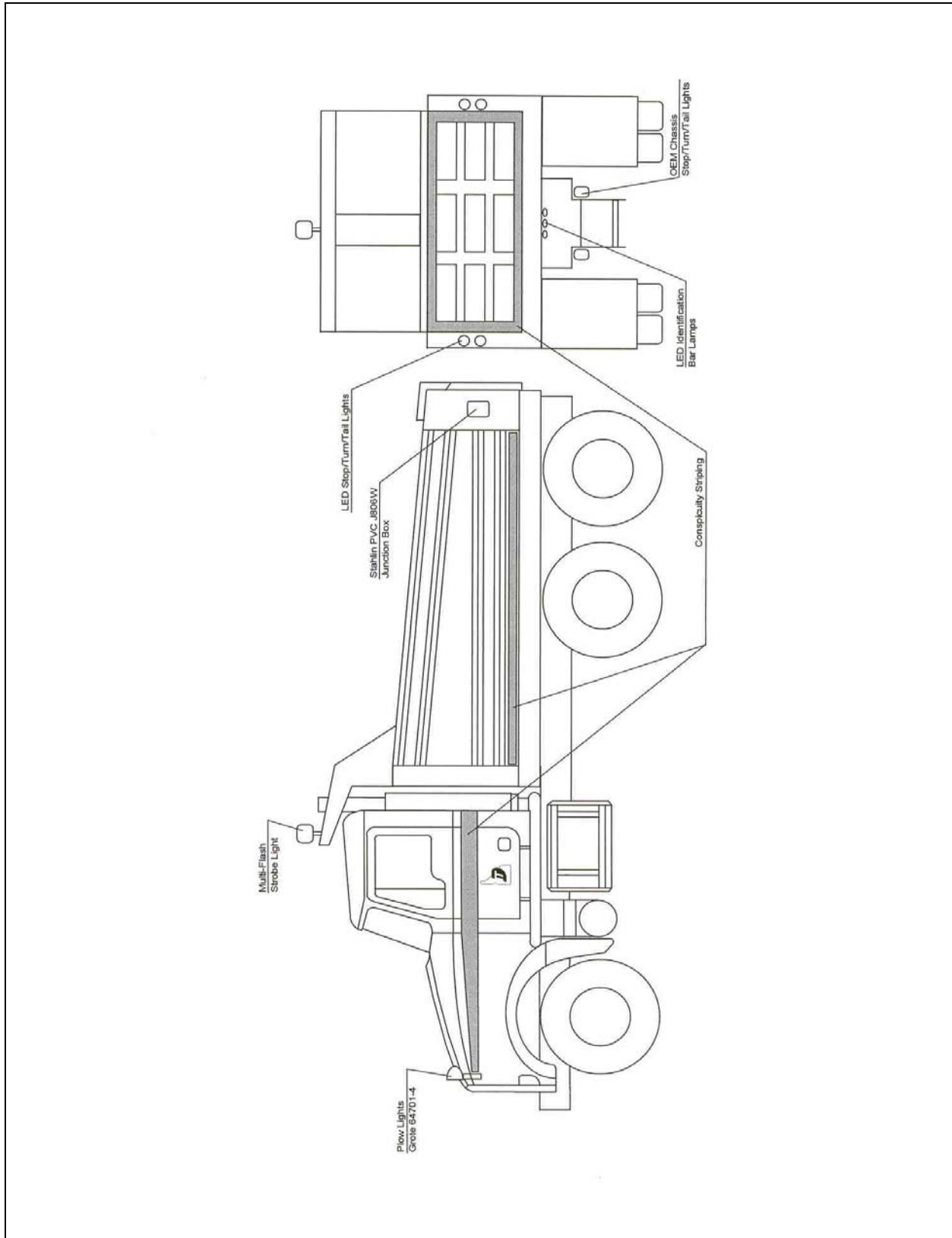
In the Presence of: \_\_\_\_\_ CORPORATION, PARTNERSHIP OR INDIVIDUAL

By \_\_\_\_\_

Distribution of signed contract:  
 White Original - FC      Pink - Issuing Office  
 Yellow-ITD Equip. Supt.      Gold - To Renter

Managing Agent  
Financial Control Agreement Number \_\_\_\_\_

Figure 700-20  
**ITD DUMP TRUCK LIGHT MOUNTING**



**795.1.4      Warning Lights and Signing for Deicer Application Trucks**

Vehicles equipped with liquid de-icing application tanks will have additional alternating amber flashing lights mounted on the rear of the body. These flashing lights will be operated from a separate switch.

In addition to the amber light(s), liquid de-icing application trucks are to be equipped with 48" x 18" "Anti-Icing" signs mounted to the sides of the tank as well as a 48" x 36" "Anti-Icing Caution Liquid Spray" sign, Catalog No. 546619309, mounted to the rear. A flashing arrow board sign of the equivalent size may be substituted for the rear sign.

In the event the de-icing application tank is utilized to haul water during other times of the year, the "Anti-Icing" signs are to be removed.

**795.2      Forward Facing Lighting On Snow Removal Equipment**

All snow plows trucks shall be equipped with two (2) forward facing hi/low beam halogen headlights mounted a minimum of 66" but no more than 78" above ground. Trucks may be equipped with auxiliary fog or spot type lamps.

Fog lamps shall be installed as per the following:

1.      Lamp shall activate with the OEM dimmer switch on low beam and shall deactivate on high beam.
2.      Lamps shall be mounted on the front of the truck below the snowplow headlights and aimed so that when the vehicle is loaded, none of the high-intensity portion of the light shall be directed to the left of the prolongation of the extreme left side of the vehicle nor more than twenty-five (25) feet ahead of the vehicle.

Spot type lamps shall be installed as per the following:

1.      Lamp shall activate with the OEM dimmer switch on high beam and shall deactivate on low beam.
2.      Shall be equipped with not more than two (2) spot lamps. Each lighted spot lamp shall be aimed and used upon approaching another vehicle that no part of the high-intensity portion of the beam will be directed to the left of the prolongation of the extreme left side of the vehicle nor more than one hundred (100) feet ahead of the vehicle.
3.      Shall be used only during inclement weather while plowing.

**796.0      REFLECTORS AND FLAGS ON SNOW PLOWS**

The following guidelines are established to improve the safety of the traveling public and the visibility of our snow plows.

1. All snow plows that exceed the width of the truck or power unit they are attached to will be equipped with both bi-directional amber reflectors and 18" x 18" red or fluorescent orange flags on each end of the snow plow.
2. The reflectors/flags will be mounted on the top portion in such a manner to designate the extended edges of the snow plow and be visible to both on-coming traffic and traffic attempting to pass the vehicle.
3. All snow plows will be painted DuPont No.7893 Yellow for visibility.

**797.0****BACK-UP ALARMS**

The following guidelines are established for back-up alarms to improve the safety of the individuals working on and around ITD equipment. These guidelines were established as policy for audible ambient self-adjusting back-up alarms on Department equipment.

Back-up alarms are to be installed on all Department pickups, vans, trucks above 10,000 lb. GVW, and construction equipment when the operator cannot see directly behind or out of the rear window and has to use outside mirrors while backing.

All the Department's self-propelled construction equipment (e.g., loaders, graders, backhoes, etc.) will be equipped with an audible ambient self-adjusting back-up alarm, to include equipment used in shops and warehouse areas such as tugs, cranes, and forklifts.

Figure 700-21  
**ITD SANDER LIGHT MOUNTING**

